

Przemysł i handel naftowy

OIL INDUSTRY AND TRADE

2018

Raport roczny

Annual report



POPiHN

Polska Organizacja Przemysłu i Handlu Naftowego

DEAR READERS,

we are very pleased to be presenting the twelfth edition of the 'Oil Industry and Trade' Report elaborated by the experts from the Polish Organisation of Oil Industry and Trade (POPiHN). The Report contains statistics, comments and information describing the situation in the liquid fuels sector in Poland, fuel production in domestic refineries, logistics, wholesale and retail trade, as well as lubricating oils production and trade. It also presents main challenges faced by POPiHN members and the whole fuel sector.

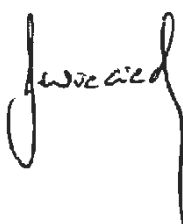
Fuel production and trade in Poland are of key importance to the entire economy, employment and state budget revenues. The value of the retail market for fuel sales in Poland is estimated at approximately 100 bn PLN. POPiHN members for years have topped the lists of the biggest Polish companies, constituting an important element of the country's economy, at the same time being a strong partner for administration and local communities. They are valued employers, act as role models in the area of innovation and also corporate social responsibility.

For another year in a row the Report in its vast majority contains good news. In the years 2016-2018 as a result of decisive actions undertaken by the government it was possible to almost completely solve the problem of grey and black economy in the fuel market. It was also possible to successfully minimize illegal activities, which for years had bothered businesses operating on the market in compliance with the law and caused huge losses in tax revenues and the whole state budget. The cooperation among state institutions and individual POPiHN members played a crucial role in solving the above problem. The scale of unfavourable events is currently much smaller than a few years ago. It is, however, worth emphasizing that frequent modifications to the law, in particular tax regulations, undermine the stability of conducting economic activity. It is therefore crucial to continue the cooperation with the state administration in drawing up legislation which facilitates the activity of business operators.

The Report you are reading was compiled on the basis of data obtained from analysing available information sources, monitoring of data acquired from POPiHN members, sector observation, as well as the information provided by the Ministry of Finance. Similarly to the previous years, it was difficult to assess the overall market due to the estimated character of a large number of data for that part of the oil and fuel market which extends beyond POPiHN members, yet even in this sphere there has been a significant improvement.

We recommend the 'Oil Industry and Trade 2018' Report and hope you will read it with interest.

Leszek Wieciech
President and Director General



Krzysztof Starzec
Chairman of the Board of Directors



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STRUCTURE OF THE ORGANIZATION

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Supervisory body appointed by the General Meeting for a three-year term of office. Current term of office is May 2016 – May 2019

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MANAGEMENT BOARD

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Leszek Wiecech – President and Director General
Current, a three-year term of office is 1 January 2017-31 December 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 2018:

Petrol	.0,735 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 2018:

Petrol	.0,735 Mg/m ³
Diesel	.0,832 Mg/m ³
Light fuel oil	.0,828 Mg/m ³
LPG	.0,558 Mg/m ³

PRODUCT DENSITIES USED IN MASS TO VOLUME CONVERSIONS IN 3RD QUARTER OF 2018:

Petrol	.0,746 Mg/m ³
Diesel	.0,834 Mg/m ³
Light fuel oil	.0,828 Mg/m ³
LPG	.0,559 Mg/m ³

PRODUCT DENSITIES USED IN MASS TO VOLUME CONVERSIONS IN 4TH QUARTER OF 2018:

Petrol	.0,746 Mg/m ³
Diesel	.0,834 Mg/m ³
Light fuel oil	.0,829 Mg/m ³
LPG	.0,559 Mg/m ³

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MAIN PROBLEMS OF THE FUEL SECTOR IN POLAND

1 FUEL INFRASTRUCTURE AND LOGISTICS, MANDATORY STOCKS

Limiting the scope of crime in fuel trade led to an increase in fuel supplies carried out by law-abiding companies, who comply with all legal obligations related to fuel trade, including, but not limited to, maintaining mandatory stock reserves. The above showed that we are short of sufficient infrastructural resources, and in the near future there may occur shortages in the storage facilities for liquid fuels.

This is mainly due to the failure to implement major investments in petroleum infrastructure in several recent years. The existing infrastructure was sufficient to serve the market, given the significant share of fuel from illegal sources.

What hinders the development of fuel infrastructure are legal regulations which do not take into consideration the nature of investments in this sector.

The process of implementing a new infrastructure of intervention stocks is still ongoing; it assumes dividing the duties between business operators and the Material Reserves Agency (60 and 30 days of stocks, respectively).

An operational issue, which obstructs the effective transport of liquid fuels by road tankers, are the axle weight limits of some roads leading to fuel terminals, which are due to either the decision of local authorities or/and road category. It causes the necessity to obtain individual access licenses for road tankers.

The problem consisting in stealing fuel from the supply chain, very often by road tankers' drivers, is still present.

OUR POSITION

It is necessary to ensure the required storage infrastructure capacity for liquid fuels in Poland by urgently launching investments in this area, as well as in the area of pipeline logistics. The functioning of the system would be undoubtedly improved by increasing the volume of crude oil and fuels stored by the Material Reserves Agency within intervention stocks, and thus lowering the level of mandatory stock reserves stored by business operators, as well as increasing the pool of agency stocks in the Material Reserves Agency. In order to improve the capacity balance of storage facilities it seems reasonable to relocate agency stocks from aboveground storage depots to underground facilities. It is, furthermore, indispensable to urgently invest in this area and enlarge storage capacities in the country.

In order to carry out investments in a fast and efficient way it is indispensable to adopt the so-called special interest acts on investment processes in the sector of oil logistics, in the form beneficial for the whole industry.

It is also of key importance to finalize the process of implementing new structure of intervention stocks, as well as eliminate regulatory barriers from the act on stocks, which have negative impact on the level of stock-related obligations and paying the storage fee.

Taking advantage of statutory provisions allowing the storage of a part of stocks in depots outside Poland would

facilitate storing for the entities which carry out the obligation of storing mandatory stocks and at the same time it would constitute a fast method of accessing new storage capacities. Such a solution would be possible to implement only in case of signing bilateral agreements enabling the relocation of stocks beyond the Polish borders.

It is necessary to implement changes to the regulations on the entry into service of vehicles with a load bearing capacity of 11.5 tonnes per axle, according to the EU regulations. The above would enable smooth road-based logistics on Polish roads.

We propose undertaking the work on the revision of regulations on sanctions imposed on dishonest drivers by returning to the regulations once included in the act on road transport (suspending drivers who have been finally convicted of fuel theft or depriving them of ADR certificates).

2 TAX REGULATIONS

In 2018 the government assumed work on a series of tax-related legal acts, part of which have been passed as laws and regulations that enter into force in 2019. The new regulations refer to both the fuel industry and other industry sectors. Due to the multitude of the acts and a fast legislation mode their thorough analysis has been very difficult, and their implementation and application will represent a significant challenge for both administrative bodies and fuel industry.

The cooperation between the Ministry of Finance and the fuel industry enabled avoiding problems related to the implementation of regulations within exchanging fiscal cash registers to the online ones or related to the e-DD transport documents.

On the other hand, imposing new obligations leads to significant increases of business operators' operational costs, especially taking into consideration the fact that some regulations refer to the same areas of activity (e.g. SENT – e-DD). When we look at RIA, undercutting costs of implementing proposed solutions is what draws our attention.

OUR POSITION

We believe that the authorities should implement new regulations in a manner which will minimize the costs for business operators. The tax provisions should take into account the nature of the industry sector. It is therefore necessary to ensure that there is no duplication of reporting and processes which appear in various systems simultaneously (e.g. e-DD versus SENT). Implementing solutions such as e.g. online fiscal registers should take place alongside with taking into consideration the opinion of the industry. Legal regulations should undergo consultations in the mode which enables interested entities performing a thorough analysis and assessment of various consequences of such solutions.

It is desirable to implement clear legal regulations which do not leave room for interpretation for control authorities,



Fot. LOTOS

with tax-related law increasing the protection of taxpayers. Transparent and stable provisions in the tax regulations, taking into consideration the specificity of the industry, constitute the basis for its further development and future investment.

We support the adoption of a uniform VAT rate for food-related products offered within various types of services.

3 CONTINUATION OF MEASURES FOR COMBATING FUEL-TRADE-RELATED CRIME

The activities undertaken by the government in 2016/2017 (Fuel Package, Energy Package and Transport Package (the so-called SENT) led to significant crime reduction in fuel trade and an increase in official fuel consumption. Nevertheless, there are still areas where illegal trade continues to take place (sales of light fuel oil, marine, jet, railway and agricultural fuel or using base oils). Entities operating on the grey market also seek for new methods in logistics, such as smuggling fuel in vehicles that are not suitable for transporting it (tanks for transportation of milk, transporting fuel in plastic containers in regular trucks, etc.).

On the other hand, we are beginning to observe the phenomenon of overcomplicating of regulations, as well as the authorities' failure to merge certain solutions (SENT – e-DD), which results in law-abiding business operators suffering more increased costs. What is being considered is the introduction of full supervision over fuel-related operations at filling stations within the so-called 'Connect' system.

OUR POSITION

For further containment of criminal activity, it is necessary to constantly observe the market, continue the cooperation between the administrative authorities and the industry, and maintain high standards of control, including on the road inspections, conducted by the National

32%

Share of energy from renewable sources by 2030.

Revenue Administration and other institutions, even when reaching a zero level of detection. On the other hand, the implemented solutions (registration within the SENT system) should not pose an excessive burden on business operators who operate in compliance with the law. Consequently, it is necessary for the National Revenue Administration to issue uniform interpretation of SENT regulations and control requirements. The systems e-DD and SENT should also be integrated to lessen the burden imposed on the business operators. The introduction of 'Connect' system should be preceded by a broad debate with the industry, organized sufficiently in advance.

We also reiterate the proposal of transferring the reimbursement procedure for excise duty on agricultural fuel from commune and municipality offices to the National Revenue Administration, as well as harmonization of the excise duty on products of similar physical-chemical composition, such as diesel oil vs. light fuel oil, LPG for heating purposes vs. autogas.

4 QUALITY OF FUELS

The fuels marketed in Poland meet all applicable quality standards and ensure undisturbed vehicle exploitation. This is confirmed by increasingly better results of fuel quality tests conducted by the Poland's Trading Standards Authority.

In Poland the regulations regarding renewable fuels for transport are being consistently introduced. The EU regulations



Fot. SHELL

related to the so-called ILUC directive limit the use of first generation biofuels to the level of 7% until 2020, as well as require Member States to enhance the use of so-called advanced biofuels. In Polish conditions the separation of the National Reduction Target (NRT) and the National Biofuels Target (NBT) still remains a challenge, and so do the technical issues related to advanced biofuels.

The amended directive on the promotion of the use of energy from renewable sources (RED II), as adopted in 2018, should be implemented by the member states until 30 June 2021; it requires achieving in 2030, among others, a 32% share of energy from renewable sources in the total EU energy use, out of which 14 percentage points should be in the area of transport. As regards fuels for transport, advanced biofuels are particularly promoted, and their share has to be at least 3.5% by the end of the next decade. The limit for standard biofuels, set for the years 2021-2030, is of crucial importance; its level will be the sum of such biofuels in the overall use of energy for transport in 2020 so that the overall level of 7% is not exceeded.

The influence of advanced biofuels on the quality of B7, E5 and E10 continues to be a challenge, both for fuel and automotive sectors.

OUR POSITION

We are of the opinion that there is a need to adopt a new, comprehensive act for 2020-2030, which would implement the regulations within RED, FQD and RED II into the Polish legislation, in the place of separate acts on the system of monitoring the quality of fuels, biofuels and biocomponents.

Furthermore, we hope that the provisions related to the fulfilment of the National Biofuels Target (NBT) and the National Reduction Target (NRT) in 2020 will be interpreted in the most fuel sector-friendly manner. We reiterate the proposal to eliminate B100 biofuel from the market, which is often used to commit VAT-related frauds as well as circumvent the obligation to fulfil the NBT, and consequently, reducing the NBT threshold to the level possible to achieve by means of obligatory blending.

The introduction of blending of advanced biofuels should be preceded by carrying out research on their influence on standard fuels used so far, as well as on the analysis of their storage and transport.

5 LUBRICANTS

The implementation of energy package and the transportation package (SENT) has imposed new requirements with regard to reporting and mandatory fuel stocks on enterprises operating in the field of oil production and sales. Furthermore, it increases the sector's operating costs. For years, the lubricating oil sector has been struggling with grey zone practices consisting in marketing mineral oils (classified within the Combined Nomenclature under CN 2710 group code) as synthetic oils (and therefore classified under CN 3403 group code). This is due to the fact that mineral oils are subject to effective excise duty rate of 1,180 PLN per 1000 litres, which does not apply to synthetic oils.

Another problem consists in unauthorised retail sales of lubricating oils, imported to Poland from the countries in

which they are not subject to excise duty tax. It results from the absence of a single policy of the EU Member States and the European Commission with this regard in a situation when in some Member States, including Poland, lubricating oils are subject to excise duty tax, and consequently covered by EMCS, whereas in other Member States they are not. It distorts the idea of the functioning of EMCS, which becomes relatively easy to circumvent, as well as the functioning of the whole market, and it also facilitates grey zone practices.

For years, we have also observed the practice of illegal incineration of used lubricating oils (so-called waste oils), which distorts the functioning of the recycling system, undermines the legal trade in fuel oils and has a negative impact on the quality of air, as well as constitutes an infringement of excise duty regulations.

OUR POSITION

We support the adoption of arrangements to minimize the negative impacts of the implementation of energy package and SENT for the sector of lubricating oils, with maintaining its protective function on the liquid fuel market.

For reducing the size of the grey market for the sales of lubricating oil, we reiterate the proposal consisting in that a single excise duty rate on 'synthetic' (CN 3403) and 'mineral' (CN 2710) lubricating oils be levied on all lubricants, on the assumption that the new value of the single standardized tax is calculated as a weighted average from the tax burden on both CN 2710 and CN 3403 codes, so that the total value of excise duty within the lubricating oil sector remains at a level approximate to the present one.

We also propose that the monitoring of lubricating oils imported from abroad in breach of the excise duty provisions be tightened. The National Revenue Administration should monitor the commercial offers, including offers posted on internet platforms, in this regard. We believe that a comprehensive solution to this issue will be possible only if lubricating oils are covered by the EMCS system within the entire territory of the European Union, which is going to become much more real in the light of Brexit, planned for 2019. The UK leaving the EU will lead to losing the so-called blocking minority by the opponents of this concept.

On the other hand, environmental protection services and the National Revenue Administration should engage far more actively in combating the practices of waste oil incineration, since only in this way it is possible to ensure the required recycling levels and support the overall efforts to improve the quality of air, energy efficiency and circular economy.

Adopting a comprehensive regulation within the works on the so-called II energy package would constitute a solution to the problems with regard to lubricating oil sales.

6 FUEL MARKET REGULATIONS

Even though the implementation of effective arrangements for combating the grey zone practices (fuel package, energy package, transportation package) has contributed to solving the key problems of the liquid fuel sector, it has also highlighted the issues with which the sector has struggled for

years, i.e. the lack of single supervision, the lack of a regulator dedicated exclusively to the fuel sector, inconsistency of individual legal acts (bio, quality, inventory, SENT, technical and construction, and excise duty provisions etc.), as well as the lack of consolidation and digitization of data shared with various institutions.

OUR POSITION

We reiterate the proposal to undertake work on elaborating the provisions of petroleum law as a comprehensive regulatory framework of the liquid fuel market in Poland, which would contain harmonised definitions and regulations relating to introducing liquid fuels onto the market, including regulations on quality, stocks, fuel surcharge, etc., as well as introduce databases and registers in an electronic form, ideally in the form of harmonised digital platform. One of the elements of the new solutions should be the introduction of a single authority supervising the sector (a regulatory body). Elaborating the project should be entrusted to a working party composed of the representatives of administration and professional organizations within the fuel sector. One of the elements of the new regulations should be the establishment of an office – a regulatory body dedicated to the fuel sector, exercising supervision and control over production, logistics and fuel trade.

It is indispensable to further strengthen the Energy Regulatory Office as a body coordinating the supervision over the sector, improve horizontal cooperation among various institutions, fully digitalize data and merge them within one system, namely the fuel platform, as well as take full advantage of the tools warranted by the applicable legal regulations. We propose tightening the licensing process and improving the solutions adopted in separate packages. It is therefore desirable to analyse the efficiency of implemented solutions and develop changes aimed at eliminating observed imperfections, with regard to, among others, certain provisions of the energy package and implementing regulations issued on its basis.

7 THEFT INCIDENTS AT FILLING STATIONS

In 2018 the amendment of the Polish Code of Administrative Offences and other acts came into force. The updated provisions include, among others, an amendment to the Polish Criminal Code, according to which 'a person who within short intervals by using the same opportunity or in a similar way commits two or more intentional offences against property shall be held responsible as if they committed one prohibited act meeting the statutory definition of a crime, if the total value of the property justifies the responsibility for the crime'. Moreover, it was also decided in this act of law to develop an electronic register, long-awaited in the trading community, of offences against property – namely the list of persons suspected of committing such offences, as well as accused and penalised persons. Such a register will be used by the police, prosecutors and courts so that 'professional' thieves, who commit petty thefts e.g. in various towns, are not charged with single offences only, but with an aggregated crime.

There is a problem that remains unsolved, namely ensuring the safety of customers who use the car parks at Motorway Service Areas. Particularly worrying is the professionalization of the community of dealers and thieves, which finds expression in creating ever larger and better organized criminal groups, specialized in such practices. The above mostly refers to stealing trucks parked at car parks, but also to illicit trafficking in goods that are often counterfeit or stolen.

OUR POSITION

It is necessary to observe the impact of adopted legal solutions on the community of criminals who steal in retail outlets, including filling stations. The situation would improve by speeding up the process of examining cases of thefts in stores by the petty offence courts and regular courts.

In order to improve safety at Motorway Service Areas we should establish a specialized police unit, the so-called Motorway Police, which would deal with road traffic-related safety as well as the safety of the customers using Motorway Service Areas alongside motorways and express ways.

8 NON-FUEL SALES AT FILLING STATIONS

Non-fuel sales are playing an increasingly significant role in the functioning of filling stations, constituting a substantial part of their revenues and encouraging the process of

transforming them into centres offering customer services. It is expected that this role will grow in significance, alongside the increase of alternative fuels share in transport. Filling stations play an important role in satisfying basic needs of the economy and the society. With reference to travellers using cars or buses, they function similarly to bus and railway stations, as well as river and sea ports and airports for other means of transport. Filling stations, thus, provide a comprehensive service to the road users – apart from filling the tank, drivers and passengers use toilets, recreational spaces, purchase meals in restaurants and fast food bars, shops, etc. Alongside many roads the only infrastructure generally available to the public (such as toilets or running water) is available at filling stations. They are also places that ensure the safety of road traffic by providing the possibility to rest or supply the car with goods necessary for vehicle maintenance, very often the only ones open during holidays and non-working days. Filling stations also provide a natural back-up support in emergency situations and therefore are an essential element in ensuring safety and public order. The experience shows that during natural disasters an efficient network of filling stations allows for an effective functioning of both security and rescue service vehicles (Police, fire services, ambulance services, etc.), and the affected population, who can purchase the supplies of the essential products.

Due to that, any initiatives aimed at imposing restrictions on the functioning of filling stations on certain days, as well as the restrictions on the range of offered goods pose a threat both to the enterprises which run filling stations and the recipients of their services. The potential changes would lead to an increase in the price of offered fuel and to the elimination of a part of filling stations from the market.

STATIONS PLAY AN IMPORTANT ROLE IN SATISFYING BASIC NEEDS OF THE ECONOMY AND THE SOCIETY.





Fot. BP

Sales of alcohol

In the wake of significant margin fluctuations many filling stations are able to continue their operations mostly thanks to the sale of non-fuel goods and services. We should bear in mind that fuel price is largely influenced by taxes and other burdens; on average, in 2018 they represented 53% of the EU95 petrol price, 49% of the diesel price and 40% of the autogas price.

Market research conducted in previous years showed that just slightly over 3% of spirits are purchased by the customers at filling stations (with a downward trend). For beer it is less than 4%, which is also less than before. Moreover, it is the filling stations which, due to the existing surveillance systems, provide the best possible enforcement of regulations prohibiting the sale of alcohol to minors and drunk persons. The experience of countries which have imposed a full or partial prohibition on the sale of alcohol at filling stations (the Netherlands, Belgium) shows that there is no correlation between the availability of alcohol at filling stations and the number of drunk drivers.

Sales of OTC drugs

At the filling stations only the basic medicines are offered, i.e. medicines which are sought and purchased to provide ad hoc emergency relief. The possibility of purchase at the stations is used by drivers and passengers, as well as local residents, particularly in small localities and rural areas. The sales of OTC drugs in such places means the fulfilment of the patients' right to a possibly quick and simple access to medicines. This is particularly important in cases of emergency, at night hours and on non-working days.

The sales of OTC drugs represents an almost non-existent share of a station's turnover and does not have any vital influence on its economic situation. On the other hand, the distribution of this category of goods significantly supports the sales of small, independent stations which are

often located in rural areas. The current model on non-pharmacy trade in OTC medicines has a long-established tradition in Poland. The level of OTC drug sales on filling stations has remained stable for many years, and the range has usually been limited to fewer than 30 products. The medicines which are sold at filling stations are delivered by pharmaceutical wholesale distributors and come as a minimum therapeutic dose, sold in packaging that is sufficient for 1-1.5 days of using the drug. It has been shown in practice that in case a larger amount or dose of OTC medicine is required, clients tend to go to pharmacies.

OUR POSITION

We find it fundamental to make consumers and decision-makers aware of the fact that a filling station ceases to be merely a place where fuel is sold and turns into a site offering distinct consumer services.

We expect that the prices on the fuel market will be shaped exclusively by the economic factors, and that the adopted regulations will not cause a further, baseless increase in the prices. We are against any actions which may cause a restriction to the range of goods and services offered at filling stations, e.g. by restricting the operations of filling stations and their shops on Sundays or limiting the sales of alcohol or drugs. The only measurable effect of imposing the proposed restrictions would be a deterioration of the situation within the oil sector, especially in the case of filling stations which operate as independent ones. Trading in goods other than fuels allows the filling stations to operate in their current number, size and format. Restricting the available number of goods and services would bring an increase in the sites' operational costs along with a rise in fuel prices.

Furthermore, any possible changes regarding the sale of medicines and alcohol should apply to the whole distribution network, and not just filling stations.

9 COOPERATION WITH FUELSEUROPE, COMPETITIVENESS OF POLISH AND EUROPEAN REFINING BUSINESS

In the European Union there is an ongoing debate on the shape of longstanding energy-climate and transport policies in the context of limiting/eliminating traffic-related emissions of greenhouse gases. The adjustment to the requirements of the low-carbon economy poses a serious challenge for the European refinery industry. This challenge was taken by the groups of experts from European petroleum companies, which are working out both the methods for reducing the emission of greenhouse gases in the process of motor fuel production and the concept of 'low-carbon' transportation fuels. Unfortunately, the political debate on the EU forum is often dominated by attitudes which are irrespective of the rules of technological neutrality and the optimization of economic, environmental and social costs. This leads to the intensification of actions related to working out policies and regulations imposing huge burdens on the European refinery business and decreasing its competitiveness.

In the EU there is an institution in the form of a Refining Forum, composed of the representatives of the sector, EU administration and the member states, and the solutions, collectively adopted within the forum, will have a direct impact on the future of the refining industry in Europe. They should take into account that in the medium term oil will remain the main source of energy for transport. Poorly thought-out legal regulations, which do not take into account the interests of not just the refining sector, but also related sectors of the economy, could lead to the collapse of the sector and the relocation of production outside the EU. This would have disastrous consequences for the entire EU economy, as well as its energy security. It is also a classic example of the so-called carbon leakage.

European Petroleum Refiners Association 'FuelsEurope' in cooperation with research centres elaborated 'Vision 2050', a prospect on the possibilities of functioning of the refining sector and modern, low-emission liquid fuels in transport until 2050. The main conclusions from the FuelsEurope report are the following:

- > **Climate change requires urgent and decisive actions** in all sectors of economy.
- > **Liquid hydrocarbon fuels will continue to be an important part of the future mobility system**, even if the share of alternative energy sources increases. The demand for refining products will increase due to the global economic growth and demography. There are restrictions on using electric drives in maritime and air transport, as well as in heavy road vehicles: for these types of transport it is a key requirement to store a maximum amount of energy in a smallest possible volume and mass, thus a strong advantage of petroleum-based fuels compared to, e.g., battery.
- > **Combustion engines will continue to play an important role** in different sectors of transport in the coming decades.
- > Elaborating and implementing **low-emission liquid hydrocarbon fuels enables efficiently satisfying the demand** for petroleum-based fuels, at the same time contributing to solving threats influencing the climate change.
- > **Liquid fuels with low hydrocarbon content can reduce CO₂ emissions in all sectors of transport in a very short time**, with the use of existing vehicle fleet and existing infrastructure for production, distribution and storage of fuels (gaseous fuels, synthetic fuels, fuels with biodegradable components). An existing network for distributing fuels for sea, air and road transport can easily be adapted to reducing emission in the future.
- > **A significant potential for reducing CO₂ emissions can stem from improving the infrastructure and operational improvements resulting from the construction of vehicles and the age of fleet:** faster renovation of fleet, optimising aerodynamics (especially in case of heavy duty vehicles, trailers), improved energy efficiency of tyres, brake energy regeneration systems, etc.
- > **Decarbonisation of transport can and should be self-financing.** We should ensure high competitiveness of European refining industry and related sectors (chemical and petrochemical).
- > **We should ensure technological neutrality** while working on decarbonisation of transport. In every location other technical-economic methods are possible to be implemented.





Fot. PKN ORLEN

OUR POSITION

We believe that it is necessary to conduct a complete calculation of advantages which the European Union gains from the operations of the refinery industry within its territory. Modern fuels, oils and lubricants, as well as state-of-the-art solutions in the field of motor engine construction should be appreciated, just like the role of the European refinery business in the entire EU economy and defence policy.

The solutions presented within 'Vision 2050' should constitute the basis for reopening a thorough debate over the future of the refining sector and transport in the EU.

We hope that the position of the Polish government on the EU forum will take into account the interest of the fuel sector to the maximum possible extent.

10 ELECTROMOBILITY AND ALTERNATIVE FUELS

Following the central authorities of some other states and implementing the directive related to the development of the infrastructure of alternative fuels, the Polish government has taken measures to support and promote the use of alternative fuels, as well as to extend the infrastructure in this field. The respective statutory provisions for the promotion of electromobility, FCEV, PHEV, CNG, LNG and LPG have been adopted. Selected technologies are promoted, without taking into account the environmental, economic and social costs, particularly with regard to the existing electric vehicle technologies. The measures aimed at the improvement of air quality in city centres do not consider the state of knowledge of the real causes of pollution and the difference between the diesel and petrol engine emissions, or the constant development of combustion engines resulting in a minimum exhaust gas emission of modern engines which comply with the EURO 6d standard. Furthermore, alternative fuels will not solve the issue of smog, as its main component, the particulate matter (PM) is mostly emitted in places other than the engine, usually by the traction between the tyres, brake blocks and road surface. The above also depends on

the vehicle's weight, and electric vehicles tend to be considerably heavier than vehicles emitting exhaust. The fiscal issues, i.e. the huge share of taxes on fuels in the total tax revenue, are not taken into account either. At the same time one other fact is disregarded, namely that thousands of vehicles circulating on Polish roads do not meet any requirements in the field of the environmental protection.

OUR POSITION

The measures for promotional support of alternative fuels should take into account the collective knowledge of the impact of single types of propulsion on the environment in the entire process of production, exploitation and recycling. One should also consider the challenges related to the excessively rapid development of electromobility, which is based on the existing technologies; these include the lack of adequate capacities within the energy sector, outdated transmission network, and, last but not least, the fact that almost the entire energy production in Poland is coal-based.

While implementing air quality improvement programmes, the local authorities, apart from the investments in electric vehicles, should also consider more cost-effective solutions, such as the elimination of coal heating in dispersed installations, the elimination of waste incineration – including incineration of waste oils, rigorous technical controls of vehicles with regard to the fulfilment of emission standards defined for the approval of a given type, and, last but not least, the purchase of state-of-the-art buses equipped with combustion engines compliant with the Euro 6d standard, which are several dozen percent less expensive than electric buses. These vehicles are particularly effective with the use of advanced environment-friendly biofuels. We believe that while decarbonizing transport, we should ensure technological neutrality, taking into account the specific nature of individual urban areas.

What is more, we should promote solutions which enable improving the quality of air in the cities at lowest possible cost, such as classic hybrid vehicles.

PROCESSING OF CRUDE OIL

In 2018 Polish refineries increased the processing of crude oil by 6% compared to the results in 2017. Total refining production amounted to 26.9 m. tonnes, which was 1.6 m. tonnes more than in the previous year. An increase in the processing of crude oil was a response to an increased demand for fuels from legal sources in the country and a growing demand of the Polish economy. In 2018 there were no long-term maintenance works of refining installations, which also influenced good refining results. The prices of crude oil imported to Poland grew another year in a row, this time by 31%, yet it did not interfere with achieving good margins on refining and petrochemical production. Even though the second half of the year was slightly better in terms of production equipment utilisation (refining increased by about 400,000 tonnes), in both semesters the refining results exceeded 13 m. tonnes. The results for the two halves of the year were, respectively: 13.3 and 13.6 m. tonnes. While analysing individual quarters of the year, it can be noted that the best quarter was the third, in which 6.8 m. tonnes were processed, yet in the remaining ones the results also exceeded 6.5 m. tonnes.

Processing of crude oil by PKN ORLEN amounted to 16.1 m. tonnes, and by Grupa LOTOS to 10.8 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, came from Saudi Arabia, Norway, Iraq, the

Great Britain, the USA, Nigeria and the UAE. Thus the share of REBCO crude oil in supply decreased from 77% in 2017 to 76% in 2018. Oil brought from the eastern direction remained the dominant type purchased for Polish refineries, and among its advantages over the competitors were long-term contracts, attractive price, technological adjustment of refineries and utilisation of long-distance pipelines, which are the optimum mode of transportation of crude oil. 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 22% (1 percentage point more than in the previous year), whereas for Grupa LOTOS it was around 27% of supplies (9 percentage points more than in 2017). For both Polish oil companies overall crude oil other than REBCO constituted 24% of supplies.

The structure of crude oil supplies to domestic refineries is presented in Fig. 2. The dominant position continues to be the one of REBCO crude oil, yet the Polish refineries expand the scale of diversification and they sign new contracts for supplies from other directions, using for this purpose the installations of Port Północny in Gdańsk. In 2018 about 21 m. tonnes of REBCO crude oil were brought to Poland (which is about 1 m. tonnes more than in 2017), out of which about 18 m. tonnes (i.e. about 1 m. tonnes more) were transported via the pipelines owned by Przedsiębiorstwo Eksploatacji Rurociągów Naftowych S.A. (PERN S.A.) from the eastern direction. The remaining oil was brought to Polish refineries via the port facilities of Naftoport in Gdańsk, and in case of domestic deposits, via rail transport.

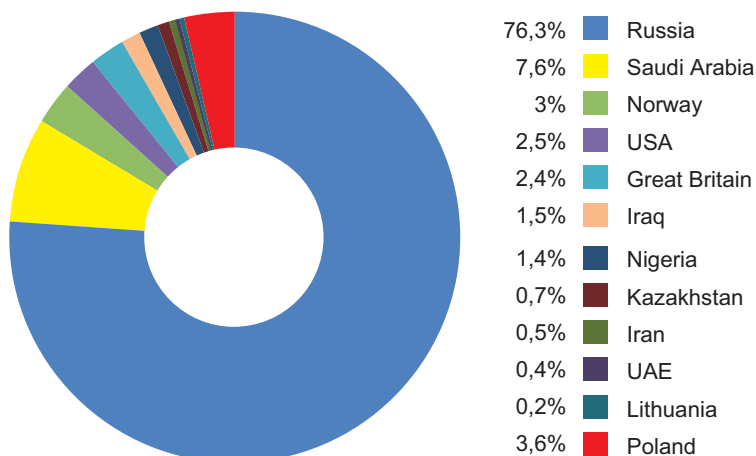
FIG. 1 PROCESSING OF CRUDE OIL – DATA FOR 2017 AND 2018 (in m. tonnes)

Source: POPIHN's own data

Description	2017	2018	Reference 2017=100
OVERALL	25,3	26,9	106

FIG. 2 SHARE OF CRUDE OIL SUPPLIES TO DOMESTIC REFINERIES IN 2018 [%]

Source: POPIHN's own data



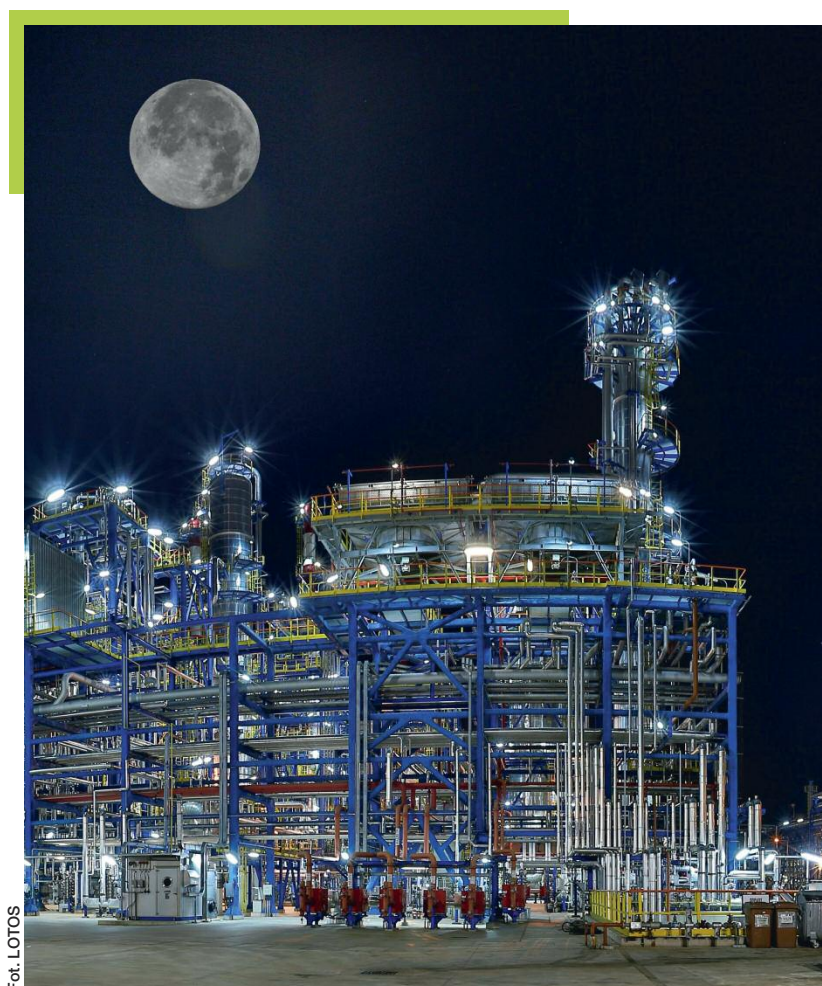
PRODUCTION OF LIQUID FUELS

Liquid fuel production in 2018 (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 27.4 m. m³. The increase in the domestic refining production and blending fuels, which in Poland is also treated as production, amounted to 8% compared to the previous year. In terms of volume it translates to an increase in supplies from this channel by 2 m. m³.

Due to a successful continuation of coping with the grey and black zone almost all domestic production of fuel types most important for the market was allocated internally. There was a significant increase in the production capacity of those products that in previous years often entered the market illegally. Mostly the production of diesel grew significantly, and so did the production of petrol, JET aviation fuel, LPG and heavy fuel oil, which must have been the result of increasing the processing of crude oil. The only product produced on a lower scale than in the previous year was liquefied petroleum gas (LPG). Production results recorded in 2018 were in line with trends in the demand on domestic market, with the maximum use of Polish refineries capacity. In the second half of 2018 the domestic production was 0.4 m. tonnes higher than in the first half of the year. The refineries took advantage of good economic situation for fuels for road and air transport, observed both in the country and in Europe. Products unable to be allocated in Poland were exported with good profits, yet slightly lower than on the domestic market. In Poland the demand for light fuel oil continues to shrink, which was also reflected in production results. The vast majority of domestic refinery production of petrol and diesel, aimed at the Polish market, was blended with biofuels, as the necessity to reach National Biofuels Target (NBT) forced such measures. 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 negatively influences the economic results of fuel producers due to the fact that biofuels are significantly more expensive than traditional fuels. In 2018 the costs, related to the fulfilment of the NBT grew further as the NBT was 7.5% compared to 7.1% in the previous year. The costs suffered while settling the fulfilment of NBT goals were slightly mitigated by applying a possible

reduction on the level of 0.85 once necessary purchase requirements were met.

Production of diesel, which is the main product of national refineries, increased by 1.1 m. m³ (by 8%), and of petrol by 0.4 m. m³. At the same time there was an increase in the production of JET aviation fuel by 264,000 m³ and heavy fuel oil by 200,000 m³. LPG recorded a good result, increased by 108,000 m³ compared to the previous year. The only product which recorded a decrease was light fuel oil (by 93,000 m³).



Fot. LOTOS

FIG. 3 COMPARISON OF LIQUID FUELS PRODUCTION IN 2017 AND 2018 [in thousand m³]

Source: POPIHN's own data

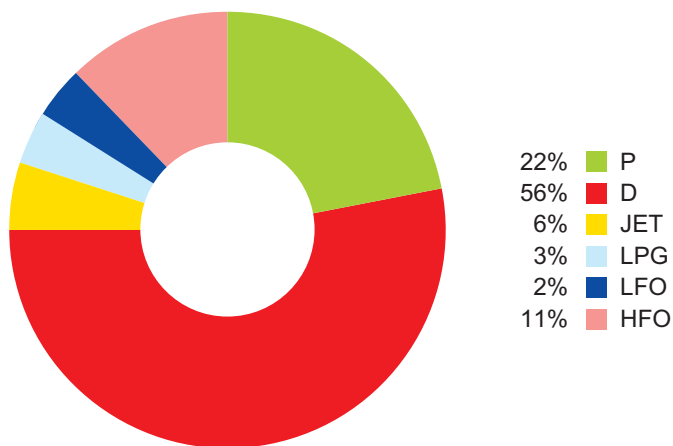
Description	2017	2018	Reference 2017=100
Petrols	5 605	6 007	107
Diesel	14 248	15 342	108
LPG	650	758	117
JET aviation fuel	1 376	1 640	119
Light fuel oil	749	656	88
Heavy fuel oil	2 760	2 959	107
OVERALL	25 388	27 362	108

27,4 mln m³

Production of liquid fuels in 2018

FIG. 4 BREAKDOWN OF LIQUID FUELS PRODUCTION IN 2018 [%]

Source: POPIHN's own data



The structure of fuel production in 2018 is presented in Fig. 4.

The structure of production balance was almost identical to the previous year's. Diesel continued to be a dominant product in domestic refineries. Its share in overall production again amounted to 56%. The second position belonged to petrol with the 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 2018 the minimum level of biofuels introduced onto the market (National Biofuels Target), which companies that produce fuels and import them were obliged to fulfil, amounted to 7.5% according to caloric value. That, in turn, resulted in the need of adding alcohol and methyl esters to the majority of petrol and diesel introduced onto the Polish market. Additionally, in order to meet the requirements of the act it was also necessary to sell a sufficient amount of B100 fuel because simply adding biofuels to standard fuels was not enough to fulfil the NBT. In order to facilitate the fulfilment of NBT the interested parties were given the opportunity to apply reduction factors on the level of 0.85 of the 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 2018 around 338,000 m³ of ethanol and around 960,000 m³ of methyl esters were added to fuels. These amounts were higher than the ones from 2017 by 8,000 m³ for alcohol and by 230,000 m³ for diesel.

Sales of B100 fuel are estimated at about 340,000 m³ (definite figures will be known until the end of March 2019), which means that sales volume of B100 in comparison to the year 2017 decreased by about 360,000 m³. This type of fuel was practically unavailable in retail trade, and in wholesale trade it was quite unpopular. Its vast majority was sent outside Poland. Such a significant decrease is mostly due to the necessity of settling blending on a quarterly basis.



IMPORTS OF LIQUID FUELS

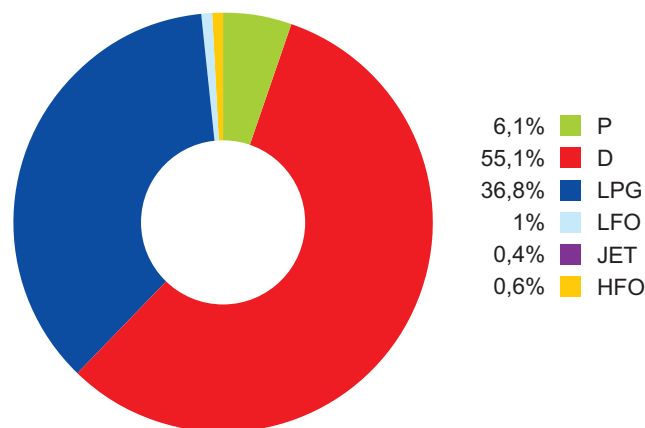
SUM OF ACTUAL IMPORTS AND INTRA-COMMUNITY ACQUISITIONS (FIG. 7 AND 8).

Maximum use of production capacities of domestic refineries and allocating as much fuel as possible in the domestic market resulted in decreasing the volumes of diesel and LPG imports, i.e. the products which usually determined the volumes of foreign purchases, necessary to counterbalance domestic demand. Thus in 2018 the total volume of imported fuels decreased as well. Based on currently available data, imports of liquid fuels amounted to almost 11.5 m. m³. When compared to 2017, it was about 800,000 m³ less, i.e. 7%. After four years of increases in the volumes of imports, in the previous year the trend reversed. Due to new legislative measures regulating fuel market and activities of control authorities the majority of products brought into the country were officially reported and registered. Also the data relating to foreign purchases of diesel, mostly used for frauds in the grey and black markets, continued to be adjusted. Increases were also recorded in the imports of petrol, JET aviation fuel and heavy fuel oil, though the volumes of the latter two were insignificant. In the past LPG had constituted the biggest share in the imports to Poland before it was left behind diesel in 2016. 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 biggest market players. It is worth noting, however, that POPiHN members were the ones to import more fuel for Diesel engines than independent operators. LPG and light fuel oil imports were in 100% carried out by companies other than POPiHN members. Throughout 2018 foreign purchases carried out by the biggest operators on the Polish market were 6% higher than in the previous year. At the same time the volumes of imports of independent operators decreased by 15%.

In 2018 the decrease in the imports of diesel equalled almost 700,000 m³ and in case of LPG almost 200,000 m³. Foreign purchases of petrol grew by 20,000 m³, as well as of JET aviation fuel and heavy fuel oil. Light fuel oil recorded imports on the level similar to the previous year's. Furthermore, decreased domestic production of this type of fuel also contributed to a further reduction of the market.

FIG. 5 BREAKDOWN OF LIQUID FUELS IMPORTS IN 2018 [%]

Source: POPiHN's own data



DUE TO NEW LEGISLATIVE MEASURES REGULATING FUEL MARKET AND ACTIVITIES OF CONTROL AUTHORITIES THE MAJORITY OF PRODUCTS BROUGHT INTO THE COUNTRY WERE OFFICIALLY REPORTED AND REGISTERED.

FIG. 7 SOURCES OF PETROL IMPORTS [%]

Source: Ministry of Finance and POPiHN's own data

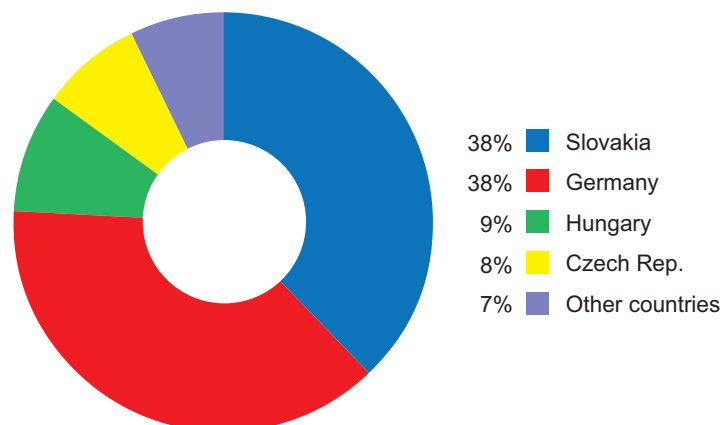


FIG. 6 COMPARISON OF IMPORTS AND ACQUISITIONS OF LIQUID FUELS IN 2017 AND 2018

Source: Ministry of Finance and POPiHN's own data

Description	2017 in thousand m ³	2018 in thousand m ³	Reference 2017=100
Petrols	632	653	103
Diesel	6 549	5 885	90
LPG	4 132	3 936	95
Light fuel oil	109	103	94
JET aviation fuel	4	46	1150
Heavy fuel oil	49	63	129
Overall liquid fuels	11 475	10 686	93

11 mln m³

The official import of liquid fuels in 2018.



Fot. LOTOS

The decrease in the officially registered imports of liquid fuels in relation to 2017 equalled almost 800,000 m³, yet for 6 main fuel types the imports amounted to 32% of supplies.

In the structure of supplies from abroad in 2018 the imports of petrol slightly grew in importance at the expense of diesel (its share decreased by 2 percentage points).

While comparing the volumes, we can see that the independent operators brought 43% 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 group of described fuels big oil companies imported around 4.4 m. m³, which was about 250,000 m³ more than in the previous year. Independent operators decreased their purchases abroad by approximately 1.1 m. m³, bringing into the country almost 6.2 m. m³ of fuels from the described product group.

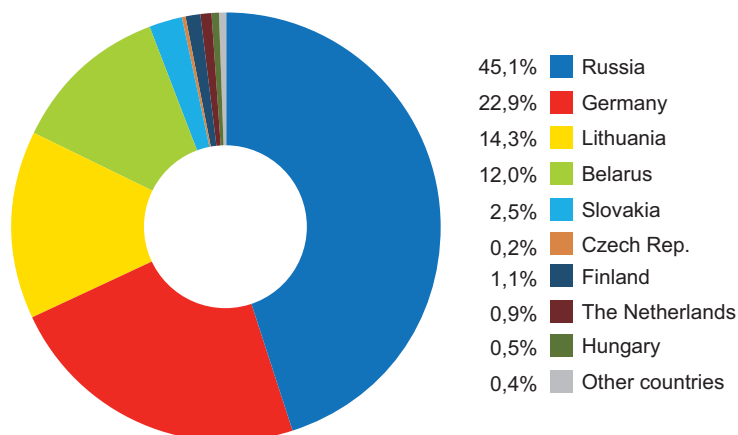
Sources of imports of petrol are shown in Fig. 7. The largest amounts of fuel for spark ignition engines were imported to Poland from Slovakia and Germany. In 2017 the biggest volume of this type of fuel was brought in from the Czech Republic, which in 2018 was ranked fourth on the list of sources of supply. Hungary continued to be a relevant supply source. Imports from other countries were fragmented and constituted around 7% of supplies.

Traditionally, imports of diesel showed a larger variety of source countries.

As before, main suppliers were Russia and Germany. Other important source countries for companies importing fuel for Diesel engines were also: Lithuania, Belarus, Slovakia, the Czech Republic, Finland and the Netherlands. Around 48% of the product was imported from beyond our eastern border, i.e. the territory of the non-EU countries, which was 8 percentage points less than in 2017. Altogether, the east, including the EU countries, provided around 71% of the whole diesel imports, almost the same percentage as in the previous year.

FIG. 8 SOURCES OF DIESEL IMPORTS [%]

Source: Ministry of Finance and POPIHN's own data



EKSPORT

OF LIQUID FUELS (SUM OF ACTUAL EXPORTS AND INTRA-COMMUNITY SUPPLIES)

Exports of liquid fuels (Fig. 9 and 10) in 2018 amounted to 3.8 m. m³, which was 14% more than in 2017. In comparison to the two previous years the above means changing the trend from a downward to an upward one. Thanks to an increase in the domestic production it was possible to allocate more fuels in Poland and send the surplus abroad. The increase in foreign deliveries equalled almost 0.5 m. m³, whereas 2017 witnessed a decrease at the level of 1.7 m. m³. Aiming at allocating domestic production internally led to changes in the structure of products sent abroad. Polish producers exported more petrol, JET aviation fuel and, traditionally, heavy fuel oil, at the same time sending abroad significantly less diesel. Once again heavy fuel oil was the dominant product.

A successful elimination of dishonest fuel traders from the market was reflected in bigger internal allocation of fuels produced in Poland. It is especially visible in case of diesel, the export of which has been insignificant for the past two years. Also in 2018 the biggest decrease in foreign deliveries, both in volume and percentage, was recorded for diesel. On the other hand, the exports for other types of fuels grew. The export of LPG, carried out by domestic producers, decreased to 0%, just like in the previous year. The increase in the processing of crude oil resulted in sending more heavy fuel oil outside Poland. Percentage-wise, the exports of diesel decreased by 83%, which is comparable to the decrease from 2017. Foreign deliveries of petrol grew by 66%, thus leading to allocating about 200,000 m³ more of the product outside Poland. Exports of JET aviation fuel grew by almost 100,000 m³. Heavy fuel oil remained the largest export product in the sector. Even though its share in exports decreased from 79% in 2017 to 76% in 2018, about 0.5 m. m³ of this fuel type was sent abroad.

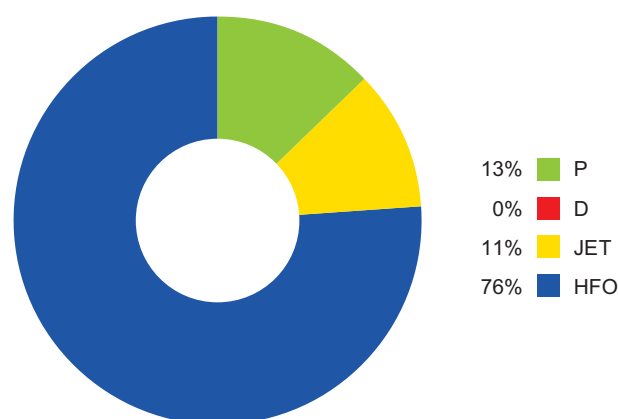
The export deliveries of JET aviation fuel shown in Fig. 9 are deliveries directly carried out by domestic producers to recipients outside Poland. Nevertheless, a significant amount of this fuel production goes to domestic intermediaries, which provide airport deliveries to domestic and international carriers. The volume of these deliveries in 2018 amounted to 1.3 m. m³, which was almost 200,000 m³ more 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 2018 increased to about 0.5 m. m³, which means that the volume of this activity grew by about 70,000 m³ compared to the previous year. We have been facing this type of activity for a few years and we may assume it will be continued in the coming years. One can also assume that this process is partially used by the grey zone. We should, nonetheless, hope that the authorities that currently have new control possibilities at their disposal (SENT for LPG) will efficiently eliminate this practice. 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.

FIG. 10 BREAKDOWN OF LIQUID FUELS EXPORTS IN 2018 [%]

Source: POPIHN's own data



In the structure of total exports of liquid fuels from Poland heavy fuel oil remained the leader, although its share slightly decreased (by 3 percentage points). The increase was recorded for petrol (by 4 percentage points) and JET aviation fuel (by 2 percentage points).

The main destinations of exports and intra-Community supplies for petrol in 2018 were the Netherlands (51%), Sweden (20%) and Norway (13%). Diesel was delivered only to the Czech Republic and the volume of the deliveries was insignificant. The largest volumes of heavy fuel oil were supplied to the Netherlands (79%) and Denmark (8%). JET was mostly delivered to Sweden (45%) and the Czech Republic (26%).

FIG. 9 STRUCTURE OF EXPORTS AND SUPPLIES IN 2017 AND 2018 (in thousands of m³)

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

Description	2017	2018	Reference 2017=100
Petrols	300	499	166
Diesel	109	18	17
JET aviation fuel	304	397	131
LPG*)	0	0	-
Heavy fuel oil	2 585	2 851	110
OVERALL	3 298	3 765	114

DOMESTIC CONSUMPTION OF LIQUID FUELS IN 2018

Table 11 presents a preliminary comparison of the officially registered domestic consumption of liquid fuels in 2018 when compared to the official domestic consumption of liquid fuels in 2017. Final data, taking into account final calculations elaborated by the Customs Service of the Ministry of Finance on imports, exports and intra-Community purchases and supplies will be available in the second half of 2019. Therefore the results presented for 2018 should be treated as estimates, yet very close to final data.

The growing Polish economy, an increase in the numbers of cars circulating on Polish roads and effective keeping of grey fuel market within limits: these were the main elements which contributed to an increase in the liquid fuel consumption in Poland in 2018. An increased official demand was recorded for two main transport fuel types: petrol and diesel, yet there was also an increase in the demand for JET aviation fuel and heavy fuel oil. However, less light fuel oil was bought in comparison with the previous year, whereas the purchases of LPG, either as autogas or heating fuel, were almost equal to the ones in 2017. In the segment of car fuels the growths in the official consumption of petrol in 2018 were the biggest, yet in terms of volumes it was over three and a half times less than the sales volumes of fuel for Diesel engines. The demand

for autogas reached the level of 65% of petrol sales. Petrol market for the fourth consecutive year witnessed an intensive growth. For all types of motor fuels (petrol, diesel and autogas) the market grew by 2.6% when compared to 2017, whereas the overall liquid fuel market grew by 2.3%. The dynamics of the market growth was significantly smaller than when compared to a two-digit one in the previous year, yet it reflected a real organic market growth. Good sales volumes of petrol resulted from a 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. An increased interest in petrol translated into a decrease in the sales volumes of autogas, which in turn was reflected in the overall results for the whole LPG market. This time, unlike in previous years, when increases were recorded, the market was similar to the previous year's. Such results were calculated without including the so-called re-export (export of gas previously purchased outside Poland), which last year was 15% more than the one observed in 2017. Taking the above fact into consideration, we should assume that for this type of fuel the domestic market shrank by about 2-3%.

To sum up, we can conclude that in 2018, similarly to the year before, on the Polish liquid fuels market there was an

FIG. 11 ESTIMATED DOMESTIC LIQUID FUEL CONSUMPTION IN 2018 IN COMPARISON TO THAT OF 2017.

Source: Ministry of Finance and POPIHN's own data

Description		2017		2018		Reference 2017=100
		in thousand m ³	share in consumption %	in thousand m ³	share in consumption %	
Petrols	Consumption	5 772		6 083		105
	of which total imports	632	11	653	11	103
Diesel	Consumption	19 839		20 345		103
	of which total imports	6 549	33	5 885	29	90
LPG	Consumption	4 842		4 824		100
	of which total imports	4 132	85	3 936	82	95
Total for 3 fuel types	Consumption	30 453		31 252		103
	of which total imports	11 313	37	10 474	34	93
JET aviation fuel	Consumption	1 071		1 279		119
	of which total imports	4	0,4	46	4	1 150
Light fuel oil	Consumption	861		780		91
	of which total imports	109	13	103	13	94
Heavy fuel oil	Consumption	184		200		109
	of which total imports	49	27	63	32	129
OVERALL	Consumption	32 569		33 511		103
	of which total imports	11 475	35	10 686	32	93

increase in official demand for all fuel types, out of which JET aviation fuel witnessed the biggest 'in plus' changes in terms of percentage and diesel in terms of volume. Domestic demand for liquid fuels was fully satisfied and there were no recorded instances of market turbulences. 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 2017 and exceeded the level of 20 m. m³. The share of official imports in the diesel market supplies reached the level of 29%, i.e. declined by 4 percentage points in relation to the previous year's. The supplementary imports were much lower than the growth of market supplies carried out by POPIHN members (+7%) and amounted to (-30%). The imports carried out by big companies recorded a growth of 7% compared to 2017 and in the end amounted to over 1.6 m. m³ more than the supplementary imports carried out by independent operators. Altogether 5.9 m. m³ of this fuel type was imported.

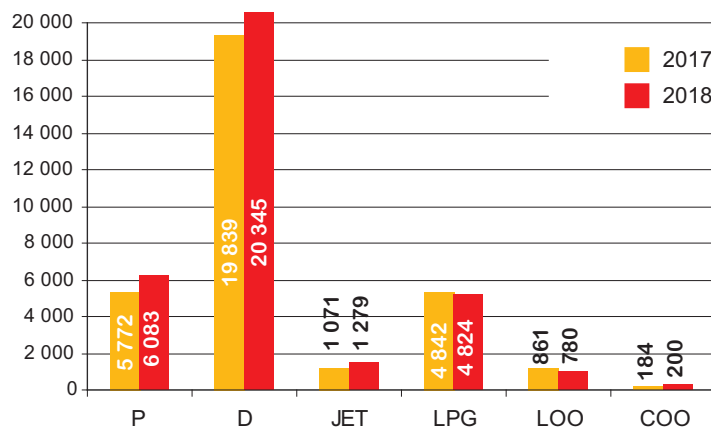
2018 was another consecutive year in which the demand for petrol recorded increases. The interest in purchasing this fuel type grew by 5% in relation to the previous year. In case of petrol the level of retail prices and the size of vehicle fleet are the factors that determine the volume of purchases. In 2018 petrol-fuelled fleet grew in size, whereas petrol prices only slightly influenced the purchases of Polish drivers. As a rule, the price relationship between EU95 petrol and autogas influences the proportions of purchase volumes carried out by drivers who own cars with dual supply system. Last year the demand for autogas grew slower than it did in case of petrol. Polish drivers used 6.1 m. m³ of petrol, out of which 650,000 m³ came from imports. Imports supplied 11% of the total petrol market share, i.e. just like in 2017.

The consumption of LPG, calculated according to the POPIHN's methodology, showed a result similar to the previous year's. However, when taking into account bigger re-export volumes than in the previous year, in the described year it was several per cent lower. The price relation: autogas – EU95 petrol remained at the level which encouraged drivers to purchase autogas (it is assumed that when autogas price is lower than 60% of EU95 petrol price, then pricewise it is better to use autogas in cars with dual supply system); despite the above fact, petrol market recorded growths and autogas market witnessed declines. Estimated results for the whole year show LPG consumption on the level of 4.8 m. m³. The volume of re-exported LPG amounted to 500,000 m³, i.e. about 70,000 m³ more than in 2017. About 82% of the domestic market (85% in the previous year) was supplied with fuel from abroad and its volume amounted to 3.9 m. m³.

The demand for light fuel oil in 2018 continued to shrink and amounted to 780,000 m³. It was a sixth consecutive year in which the domestic demand for this product was estimated at a level below 1 m. m³. Most of the demand for this fuel type (87%, just like the year before) was met by supplies from domestic production. In 2018 the official

FIG. 12 DOMESTIC CONSUMPTION OF LIQUID FUELS IN 2017 AND 2018 [in thousand m³]

Source: POPIHN's own data



Fot. BP

supplementary imports decreased by slightly over 6,000 m³ and amounted to 103,000 m³.

It was another consecutive year throughout which the domestic demand for JET aviation fuel continued to grow, while its growth was estimated on the level of 200,000 m³. Thus its consumption reached almost 1.3 m. m³. The market growth was satisfied mainly with the use of domestic production, whereas marginal imports of this fuel type equalled 46,000 m³, which constituted only 4% of the demand.

In comparison to 2017 domestic consumption of heavy fuel oil increased. This time the demand increased by 9%, which confirmed the domestic demand threshold to be on the level of 200,000 m³. This type of fuel is produced in Polish refineries in the amounts significantly exceeding the domestic demand and therefore for years the surplus has been sent abroad in large quantities.

Total official domestic consumption of the 6 types of liquid fuels amounted to almost 33.5 m. m³ and was higher by 1 m. m³ than the one in 2017. The official increase of the market amounted to 3%, within which the imports fell by 7%, with a share in the total market estimated at 32% (i.e. 3 percentage points less than in the previous year). The official imports of fuels supplied to the Polish market

amounted to 11 m. m³, which was 0.8 m. m³ less than in the previous year.

The structure of fuel consumption in Poland has been presented in Fig. 13.

In relation to 2017 the breakdown of consumption of liquid fuels remained practically the same. In Poland the consumption of diesel continues to prevail and this time its share amounted to 61% of consumed fuels.

The main source for supplying the domestic market with liquid fuel supplies are the Polish refineries, for which it is more profitable to sell the product in the country than to export it. After eliminating from the market significant quantities of goods traded within grey and black economy, the products, until recently exported in substantial amounts, entered the domestic market. Surpluses of products unable to be allocated in the country were the only ones shipped abroad. The balance of international trade in liquid fuels for Poland is presented in Fig. 14.

In 2018 the dominance of fuel imports, understood in broad terms, over exports was almost threefold, slightly smaller than in 2017. A 7% decrease in imports and a 14% increase in exports slightly reduced the difference in comparison to the previous year's one. The volume of imports is mostly influenced by diesel and LPG, whereas the balance of exports is currently dominated by foreign shipment of heavy fuel oil. Law-abiding companies operating in the country managed to regain another part of domestic diesel fuel market, in 2016 still occupied by the grey and black economies. It is an increasingly smaller area, yet still worth being taken into account by control authorities. If in the coming years the Polish economy continues to grow, and such are the forecasts, and if at the same time the fleet of vehicles circulating on Polish roads continues to expand at the rate witnessed in recent years, we might assume that current proportions between imports and exports will increase for the benefit of imports. Polish refineries are already operating at full capacity and the prospects for increasing production, apart from EFRA investment in Grupa LOTOS, in the near future are minimal. A growing market will have to be supplied with growing imports. International trading balance for the Polish fuel sector will continue to be shaped mainly by diesel and LPG imports on the one hand and heavy fuel oil exports on the other, yet soon it may be necessary to import petrol.

FIG. 13 BREAKDOWN OF LIQUID FUELS CONSUMPTION IN 2018 [%]

Source: POPIHN's own data

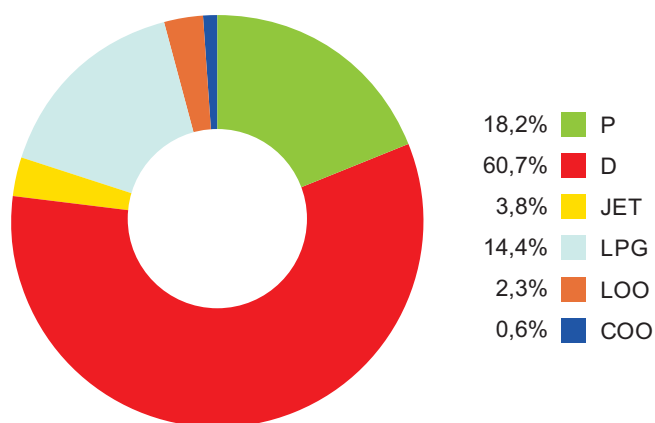


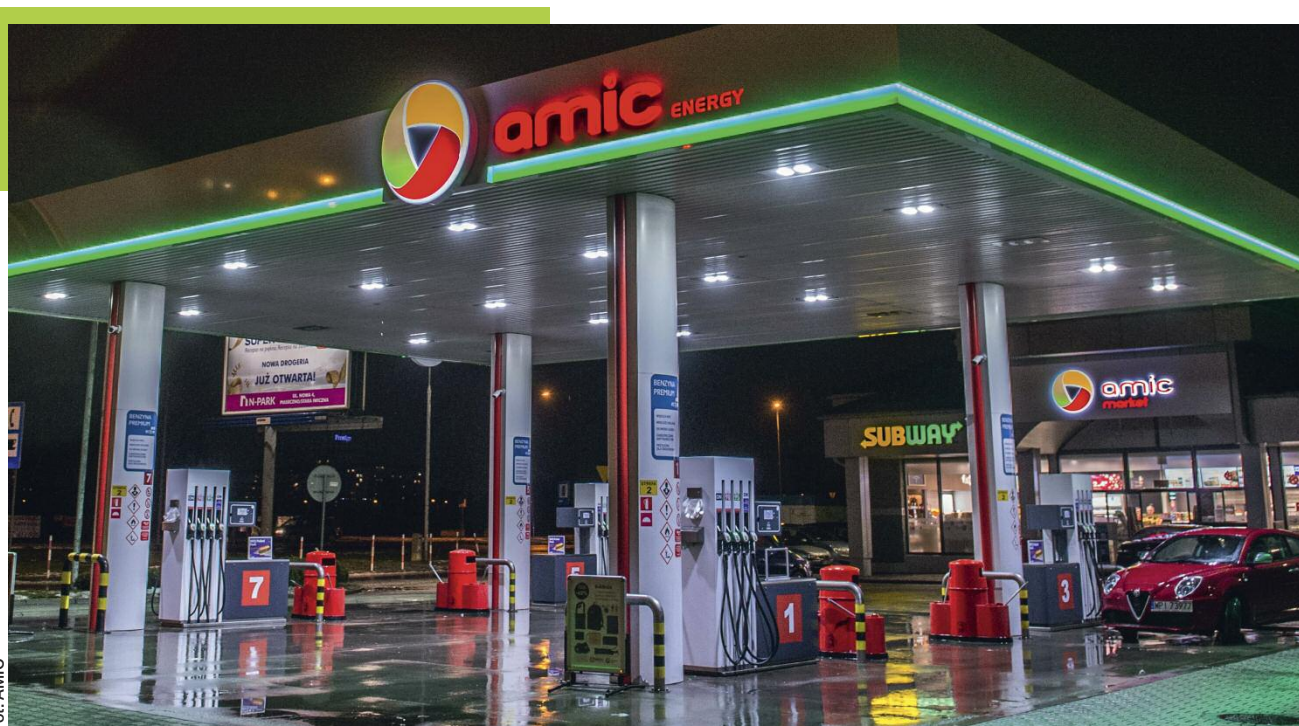
FIG. 14 BALANCE OF INTERNATIONAL TRADE IN LIQUID FUELS IN 2018 [in thousand m³]

Source: Ministry of Finance and POPIHN's own data

*) – trade of domestic producers

1	Imports + Purchases	Exports + Supplies	Difference (2-3)
	2	3	4
Petrols	653	499	154
Diesel	5 885	18	5 867
LPG	3 936	0 *)	3 936
JET aviation fuel	46	397 *)	(-351)
Light fuel oil	103	0	103
Heavy fuel oil	63	2 851	(-2 788)
OVERALL	10 686	3 765	6 921

TOTAL OFFICIAL DOMESTIC CONSUMPTION OF THE 6 TYPES OF LIQUID FUELS AMOUNTED TO ALMOST 33.5 M. M³ AND WAS HIGHER BY 1 M. M³ THAN THE ONE IN 2017.



Fot. AMIC

RETAIL MARKET

2018 will go down in history of the oil sector in Poland thanks to the creation of the first official database of the country's fuel infrastructure. As a result of the provisions of revised energy law the Energy Regulatory Office managed to collect reliable data on the number of filling stations, storage depots and the remaining infrastructure used in transport and sales of fuels. There were also some arrangements introduced regarding the licences for trading in fuels. Until 2017 Polish Organisation of Oil Industry and Trade estimated the filling stations market in Poland on the basis of data acquired from POPIHN members and other publicly available sources. In 2018 for the first time it was possible to balance the market based on reliable and official data. Based on new estimates, it results that at the end of 2018 the network of filling stations, which consists of publicly available sites selling at least petrol and diesel, comprised 7,765 outlets. Compared to the POPIHN's estimates from the end of 2017, the market grew by 1122 stations. The increase in the number of stations can be explained by an accurate analysis of the market, as well as by organic development of the biggest supplies of fuels.

The market has changed because of new investments, changes in filling stations' locations, but also due to acquisitions, mainly in the segment of non-attached stations, mostly performed by the biggest domestic networks, also the ones not attached to oil companies. The market of filling stations kept changing, but also 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 at the same time do basic shopping, rest during our journey, perform financial services, have something to eat or carry out basic car maintenance services.

Available official statistics related to the filling stations slightly changed the estimates on the market shares of individual operators' groups. First of all, compared to 2017, there was an increase in the numbers describing the independent stations, i.e. a group which was always thought to be heavily underestimated in the statistics shown by POPIHN, as well as by other companies monitoring the market. The new balance showed that share of domestic companies in the overall number of stations equals about 29%, the international companies' share is 20%, whereas the remaining stations' share is almost 51%, out of which hypermarkets constitute approximately 2.5% of the market,

FIG. 15 NUMBER OF STATIONS OF RETAIL OPERATORS IN 2016-2018

Source: POPIHN's own data

	2016 31.12.2016	2017 31.12.2017	2018 31.12.2018
Filling stations network			
Domestic Companies	2 253	2 269	2 282
Foreign Companies	1 467	1 487	1 512
Independent Chains (Operating Under A Common Brand)	900	932	1 071
Other Operators			
Independent (approx.)	2 000	1 768	2 708
Shops	183	187	192
Total (approx.)	6 803	6 643	7 765

BASED ON NEW ESTIMATES, IT RESULTS THAT AT THE END OF 2018 THE NETWORK OF FILLING STATIONS, WHICH CONSISTS OF PUBLICLY AVAILABLE SITES SELLING AT LEAST PETROL AND DIESEL, COMPRISED 7,765 OUTLETS.

while the so-called independent stations, i.e. the ones not belonging to oil companies, constitute 14% of the total filling stations market in Poland. Stations functioning under one brand not attached to oil companies were becoming more and more visible on the market, not only within the region, but also on the scale of the whole country. There was a noticeable process of acquiring independent stations by operators with a greater potential. Such acquisitions mostly consisted in switching to corporate logos of the franchisor: a large company or other private operator. Despite an ongoing consolidation of the market, quite a big group of operators, with good locations for their stations, continued to run their businesses by themselves. At the same time we observed a development of brands which were not very visible in 2017.

In 2018 PKN ORLEN remained the market leader in filling stations in Poland. The BP network continued to be in the number two position, whereas, for the third year in a row, Grupa LOTOS occupied the third place. National oil companies continued to operate under four brands: ORLEN and BLISKA in case of PKN and LOTOS and LOTOS OPTIMA in case of Grupa LOTOS, although the number of stations under the green logo of PKN decreased again and the number of economic stations of Grupa LOTOS remained

on an unchanged level. This was the result of the new policy of national oil companies towards harmonising the colours and offering a uniform standard of service. There was a growth in the segment of stations under international companies' logos. The number of such stations amounted to about 1.500.

In the segment on independent stations attention should be given to high dynamics of the development of MOYA stations, yet the networks of Huzar and AVIA also continued to grow. Franchising agreement continued to be the main tool in attracting new stations to the network last year, yet there were also outlets built from the scratch. The latter ones mainly appear within the networks of the oil companies, however, a number of sites owned by hypermarkets and the independent operators have been built as well.

The value of retail market for fuel sales in Poland in 2018 was estimated at about 121 bn PLN, whereas its volume at almost 27 bn litres of fuels (petrol, diesel and autogas). State budget revenue from taxation (VAT, excise duty, fuel surcharge) from retail sales of fuels amounted to approximately 59 bn PLN.

Thanks to new outlets and acquisitions the overall number of stations under the logos of national oil companies increased by, just or as many as 13, 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. It is worth noting that Circle K finalised the process of rebranding the logos of its filling stations, which until recently had been operating under the STATOIL logo. The rebranding also started at the stations of Amic, which manages its outlets under the logo of LUKOIL. BP, on the other hand, informed about its plan of acquiring the Arge network, which, in case the contract is signed, will strengthen the company's position on the Polish market.

The network of filling stations operating along Polish motorways has been gradually growing, alongside the development and enhanced complementarity of the network of express roads.

In 2018 there appeared 5 new stations located at Motorway Service Areas (MSAs). PKN ORLEN, with 41 filling stations of this type, continues to be the leader in this category. Grupa LOTOS and BP have half this number of such filling stations, whereas Shell owns nine outlets and Circle K two. Even though fuel offered at this type of filling stations usually tends to be much more expensive than in outlets located along other road types, such stations at MSAs are changing the geography of purchasing fuels by drivers. Today it is possible to use motorways and express ways while travelling across Poland without having to drive away off the route in order to fill up. Filling stations, which until recently were natural facilities along these motorways, are losing customers, and the same occurs in case of stations along roads alternative to the express ones, due to the traffic being shifted.

In 2018 PKN ORLEN increased the size of its filling stations network by 11 outlets, ending the year with 1,787 outlets. The company is systematically reducing number of stations operating under the BLISKA logo: in 2018 it was reduced by 24, amounting to 52 stations owned at the end of the year. The change stemmed from closing down some outlets and

FIG. 16 FILLING STATIONS IN POLAND AT THE END OF 2018

Source: POPIHN's own data

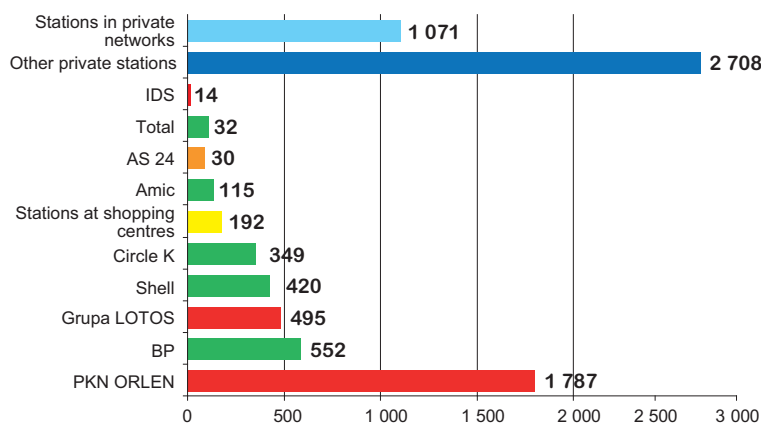
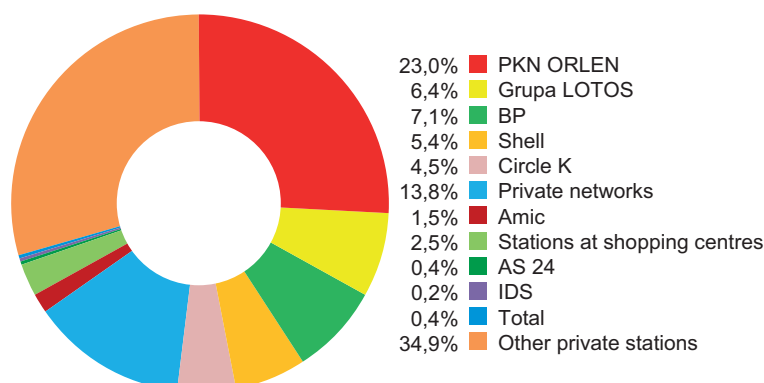


FIG. 17 BREAKDOWN OF FILLING STATIONS MARKET AT THE END OF 2018 [%]

Source: POPIHN's own data



rebranding the other part to the red logo of PKN ORLEN. The company opened 4 new stations located on motorways and at the end of the year it managed 41 such outlets.

Grupa LOTOS closed the year with 495 filling stations, i.e. 2 outlets more than in the previous year. 197 stations operated under the logo of LOTOS OPTIMA, i.e. 8 less than in the previous year. The company did not expand the number of stations along motorways and continues to manage 20 MSAs. Currently LOTOS is number three on the filling stations market and number two in terms of the number of owned stations located on motorways.

Another segment of the filling stations market, i.e. outlets operating under the logo of international companies, grew in strength. The vice-leader in the market, the company BP, owned 552 filling stations at the end of 2018, increasing the number of owned stations by 15 outlets. The company currently manages 19 outlets of this type, just like in the previous year. Shell Polska closed the year with 3 stations less in its network, compared to the end of 2017. The company owns 420 stations, 14 out of which operate in the self-service format and 9 of which are located in the MSAs on motorways. Circle K after changing the visual aspect at the end of the year owned 349 stations, just like the year before. Amic Polska, managing the network of stations under the Lukoil's logo, did not change the number of filling stations and continues to own 115. TOTAL, since resuming its activities on the Polish market of filling stations in 2015, managed to put its logo on 32 stations, while in 2018 it enlarged its network by 9 stations functioning on the basis of franchising agreement.

Due to inclusion of the filling stations in Poland in the official statistics the number of the so-called independent filling stations apparently grew. Apparently, as some of them had been functioning before, yet they were not visible for the statistics carried out by POPIHN. It is, however, safe to say that this segment of the market is constantly shrinking. A number of companies were closed down during the verification of concessions, some rebranded to big oil companies' logos, while some joined the independent operators' networks. Adopting the POPIHN's nomenclature (independent networks are the ones where under one logo there are at least 10 outlets), this group of operators expanded the number of their outlets to 1071. The most active private network in 2018 was MOYA brand, which grew by about 40 stations. It increased the number of its filling stations to 199. Such operators as Huzar or the Pieprzyk group were also active. UNIMOT continued to develop the AVIA brand and ended the year with 42 filling stations in this network. The above means that the network grew by 27 stations, which had functioned as independent ones before. Ultimately, all the independent stations' networks (defined by POPIHN in the way described above) grew by about 140 filling stations. Together with the development of independent brands it is becoming more and more attractive for the remaining independent operators to participate in such undertakings, which definitely makes this segment of the market continue to grow. It is an alternative for cooperation with large fuel companies, whose requirements as to maintaining service standards and the standardisation or store displays are, however, not accepted by everybody. At the end of 2018 fuel stations operating

under the above-mentioned formula are in the number two position in terms of the number of organised outlets which carry out retail fuel sales and is becoming more and more real competition for the filling stations owned by oil companies.

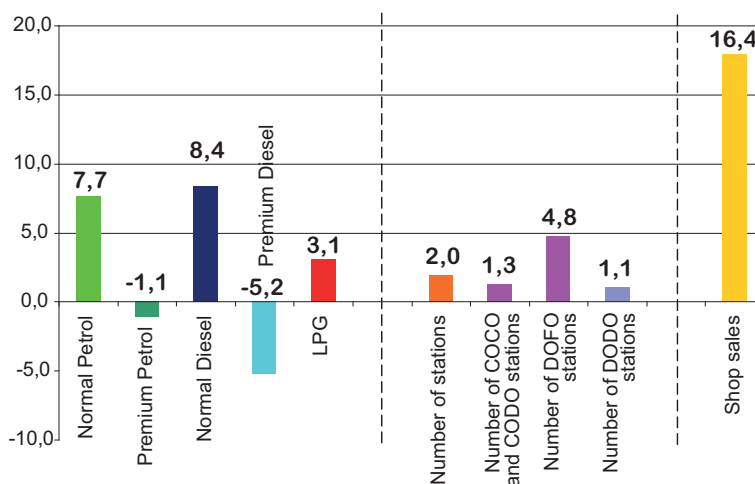
The number of filling stations owned by super- and hypermarkets in 2018 increased by only 5 outlets, just like in 2017, and amounted to 192. Their share in fuel stations market is relatively small, but we should keep in mind that these stations are attractive pricewise to the buyers and thanks to that they have high fuel sales volumes and their share in retail sales is usually 3 times bigger than the share in filling stations market. Nonetheless, despite earlier announcements, the number of new outlets is currently not increasing rapidly, and future investments will probably have to take into account declines in sales due to non-trading Sundays.

Thanks to the new database of the Energy Regulatory Office for the first time it is possible to determine the number of fully independent filling stations. It is still difficult to clearly define how many independent stations actually operate in Poland as this segment of the market is undergoing current transformations. Officially available information shows that at the end of 2018 in Poland there were about 2,700 stations operating as completely independent or grouped into small local networks comprising not more than 10 sites. The stations that were taken into consideration were the publicly available ones offering at least 2 fuel types (P and D). There are also some stations on the market which only trade in autogas or diesel, yet they are a significant minority when compared to the ones described above and thus they are not taken into account in our estimates.

The regulations implemented in 2016 under the Energy Package constituted a framework which enables creating an official, reliable fuel platform, within which it would finally be clear what type of infrastructure is used to provide the Poles with fuels, how many filling stations there are and how they operate. In 2017 we could appreciate the effects of new legal regulations efficiently implemented and carried out by the Energy Regulatory Office.

FIG. 18 CHANGES IN RETAIL SALES OF FUELS, IN NUMBER OF FILLING STATIONS AND IN SALES AT STATION SHOPS IN 2018 COMPARED TO 2017 [%]

Source: POPIHN's own data



RETAIL MARKET OF LIQUID FUELS from the point of view of POPIHN members

This section of the report is devoted to the description of phenomena and trends taking place on domestic market for retail sale of liquid fuels. The market analysis is carried out on the basis of reliable data obtained from POPIHN members that at the end of 2018 owned 3,794 filling stations in Poland. Thanks to the new database of the Energy Regulatory Office in 2018 it was possible to determine a real number of filling stations and relate sales tendencies of the biggest market operators to the remaining part of the fuel market. In its analyses POPIHN uses the information on the independent filling stations as well as the ones belonging to oil companies' networks that are publicly available and sell at least 2 types of fuels (P, D). On this assumption, the Organisation estimates that in Poland there are around 7,800 filling stations.

The trends taking place on the retail fuel market are thus defined on the basis of reliable data directly gathered from POPIHN members and then applied to the whole filling stations market. The analysis of the activity described below is thus performed on a sample comprising about 50% of the market. The remaining part of the market belongs to the independent operators, but, unfortunately, it is practically impossible to obtain any information on the market data of these operators. Therefore the overall market can only be assessed based on the estimated results of the biggest operators compared to the remaining part of the market on the basis of the estimates based on the difference between the overall retail fuel market data and POPIHN members' ones.

In 2018 the stations operating under the logo of POPIHN members in Poland performed around 72% of overall retail sales of petrol and around 52% of diesel. Such shares allow to present the trends and changes occurring on the market for retail sale of fuels. Furthermore, such estimates of the market allow to assess the non-fuel retail operations carried out at the station shops, as well as other services

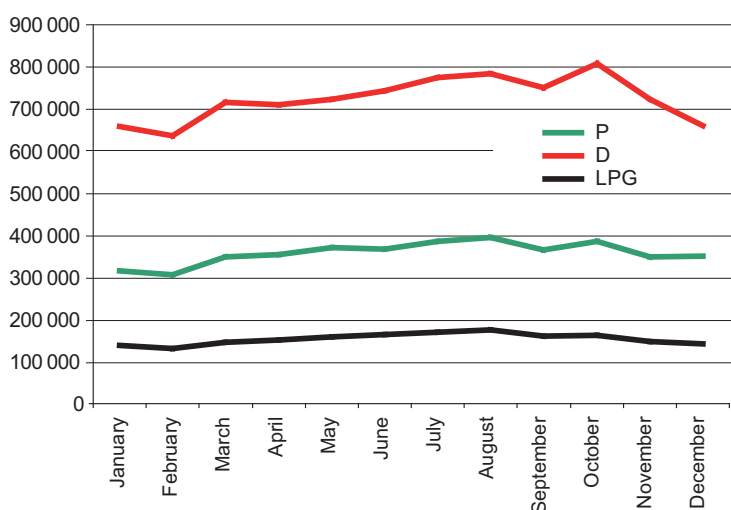
such as fast food outlets or basic services related to vehicle maintenance. The standards and requirements set and implemented at the stations of the biggest market operators serve as a model to be followed by the remaining companies selling fuels to drivers.

The most important changes in the retail sales market for fuels in POPIHN members' station networks and their operations are shown in Fig. 18. Compared to the previous year, the majority of indicators in the analysed categories were positive. The only negative result is in the sales of premium fuel, which resulted from much higher prices of this type of fuel in comparison to the previous year. The companies expanded their networks by adding stations operating under the DOFO franchising formula and in the segment of the biggest 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. The consolidation of the filling stations market was increasing around the biggest market operators, both big oil companies and the ones from the independent stations sector. There was a more dynamic growth in standard fuels sales than in the previous year, yet at the expense of the sales of premium fuels grew, which recorded a worse result than in 2017. In 2018 stores located at filling stations recorded a significant increase in the so-called non-fuel sales. The above was mainly influenced by the entry into force of a ban on trading in large-surface shops on non-trading Sundays, as well as by expanding and enriching the product range and by developing fast food outlets operations. The number of shops at filling stations increased alongside the development and modernisation of the station market. Besides, there were numerous promotional offers, and the offer of the filling stations was also enriched by simple maintenance services such as vehicle washing or cleaning car interior. Filling stations' 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 are a thing of the past.

Premium fuels, with their own names often given to them by individual brands, are mostly sold by the stations owned by oil companies. There are, however, some independent networks offering premium fuels in their own formula and under their own name. 2018 was different from the previous years as for the first time in several years the growth in the sales was lower than in the previous year. Such was the effect of prices, which for this fuel type in 2018 significantly exceeded the level of 5 PLN per litre, which was a considerable shopping barrier. The sales of premium fuels usually heavily depend on their prices, and even though in previous years they were traditionally more expensive than the regular ones by 0.25 – 0.35 PLN per litre, the price levels observed last year significantly weakened the interest in this type of products. In the overall retail petrol sales volumes of the POPIHN members the share of premium type amounted to 10%, whereas in the overall petrol market in 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. Such volumes prove a decrease of premium types share in the overall fuel

FIG. 19 SALES OF MOTOR FUELS AT POPIHN MEMBERS' STATIONS IN 2018 [M³]

Source: POPIHN's own data



market, which is the result of an increase in the official sales of standard fuels after reducing the activity on the informal fuel market. Drivers increasingly appreciate exploitation aspects, which relate to purchasing better quality fuels, and whenever the prices allow them to do so, they buy them in bigger amounts. In case of high compression engine fuel wintertime is significant as this is when premium fuels share increases.

As POPiHN rightly assumed in its previous forecasts, sales of regular EU95 petrol continued to grow and it was a continuation of the trend from two 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 filling stations owned by POPiHN members recorded an almost 8% increase in basic petrol sales and an 8% increase in standard diesel. A stronger interest in petrol was influenced by an increase in the number of vehicles on Polish roads and an increased level of interest in purchasing cars with petrol engines rather than diesel engines. At the same time there was a stabilisation in the number of cars with alternative autogas installation. Bigger sales volumes of diesel can be accounted for by eliminating from the market the sellers of this fuel type operating within the informal and illegal markets. The increase in the sales volumes of this fuel type can also be accounted for by the good condition of Polish economy, in which diesel is the most important transport fuel.

In 2018 POPiHN members expanded their networks mostly by gaining new stations in DOFO formula, i.e. by means of franchising agreements. New stations were also built, 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.

During the year in question there was an increase in the number of shops at filling stations, as well as in their sales volumes. The increase in the value of sales amounted to almost 18% and due to the reasons described above reached a record level in the past few years. Besides, the Poles also travelled more. At the same time the fleet grew by 1.5 m. vehicles, thus increasing the frequency of visiting filling stations, which in turn influenced the sales volumes of the station shops.

Fig. 19 presents monthly retail sales at POPiHN members' filling stations. We can observe a clear seasonal nature of sales, which tends to repeat in consecutive years. Similar graphs can be elaborated for independent stations, but in case of such stations the falls in sales are usually more marked in periods of weaker sales carried out by oil companies, whereas the growth periods are smaller in periods when oil companies sell more fuels.

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 DODO formula. In case of diesel the situation was similar. Autogas was the only fuel type that sold better at the oil companies' own stations than at the ones under patronage agreements. Overall increase in petrol sales equalled 7%, in diesel 6%, whereas in autogas 3%. Sales of petrol and autogas are closely correlated with fuel prices, and in case of diesel also with economic growth. In 2018 the economy witnessed growth again, which, alongside efficient reduction

FIG. 20 CHANGES IN RETAIL SALES AT FILLING STATIONS IN 2018 [MONTH/MONTH AS %]

Source: POPiHN's own data

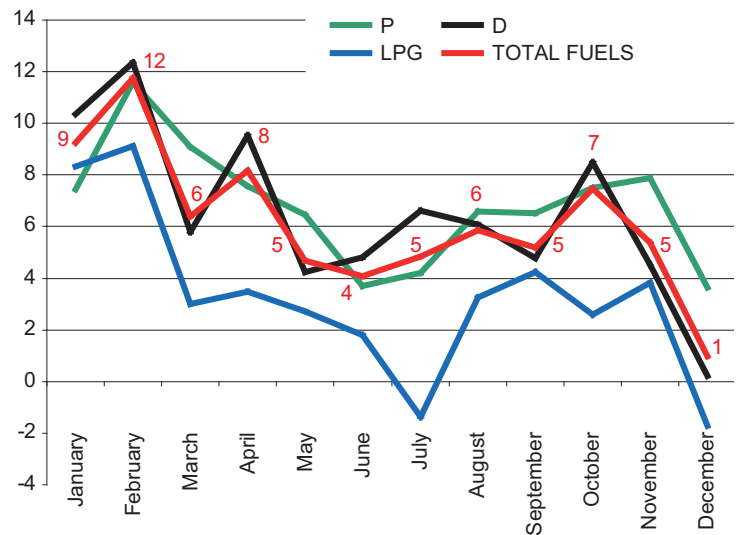
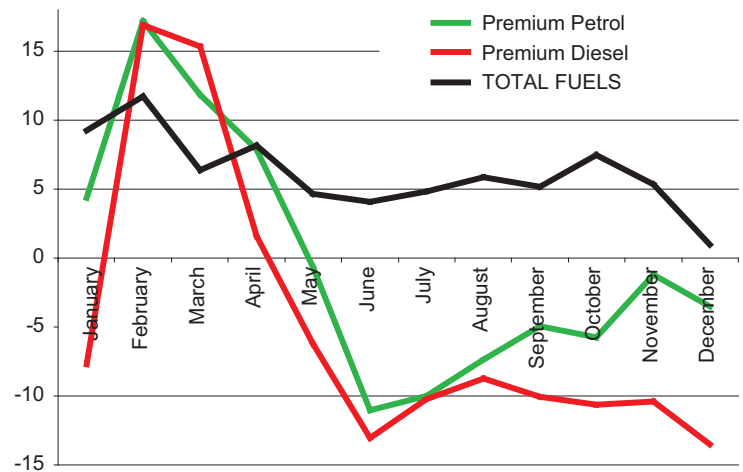


FIG. 21 CHANGES IN PREMIUM FUEL SALES AT FILLING STATIONS IN 2018 [MONTH/MONTH AS %]

Source: POPiHN's own data



of the grey and black market, must have been reflected by the improved sales volumes at the dispensers. Limiting illegal sales also influenced the increased sales volumes of stations under the DOFO and DODO formulas, which until recently most often had to compete against illegal competition. The operators of this type of stations recorded positive results in petrol, diesel and autogas sales.

In 2018 margin levels obtained from fuel sales slightly improved when compared to the previous year, yet they were still not sufficient to enable filling stations to maintain themselves. It was, therefore, indispensable to run a station shop with a wide range of products. 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, makes it much easier to generate additional income. More customers purchasing at the shop makes it possible to influence the prices of fuels, whereas lower fuel prices are equivalent to

more customers at the shop. In this way the loop is closed and we can see that both elements, i.e. a station and a shop, have to collaborate. The quality and range of fuels and non-fuel goods, as well as extensive and attractive loyalty programmes are, in case of filling stations owned by the biggest market operators, the best method to attract customers.

Changes in fuel sales at the stations owned by POPIHN member companies between individual months of 2018 are presented in the diagram in Fig. 20.

Throughout the year we witnessed changes in the fuel demand. We can, however, clearly see a considerably downward trend over time, due to increases in retail prices and, at the very end of the year, also winter weather conditions.

For the year as a whole, the average growth rate of fuel sales at stations owned by POPIHN member companies was

FIG. 22 MARKET OF SHOPS AT FILLING STATIONS OF POPIHN MEMBERS IN 2018 [%]

Source: POPIHN's own data

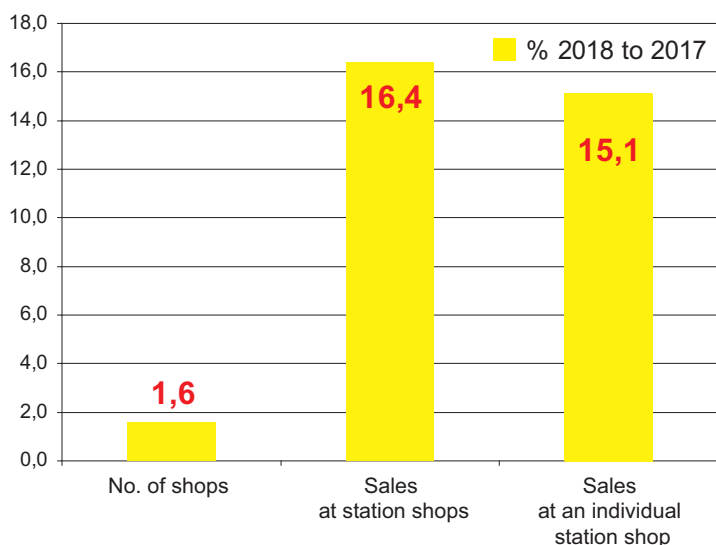
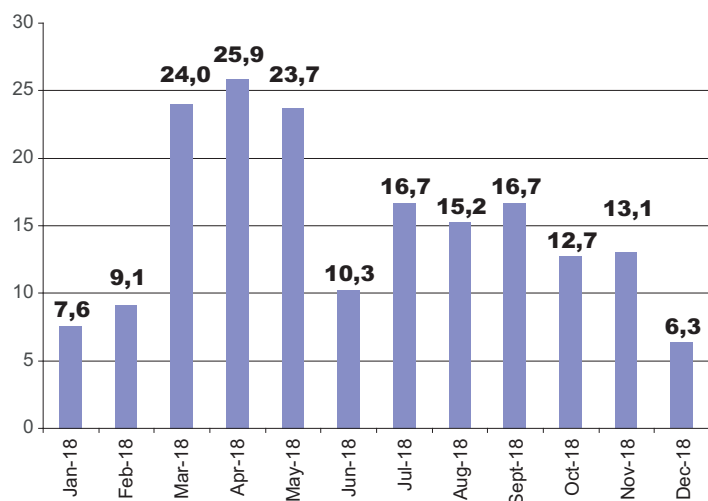


FIG. 23 CHANGE IN VALUE OF SALES IN SHOPS OF POPIHN MEMBERS IN INDIVIDUAL MONTHS OF 2018 COMPARED TO 2017 [%]

Source: POPIHN's own data



6%, whereas diesel sales showed an increase of 6%, petrol – a growth of 7%, and autogas – an increase of 3%. Analysis of sales growth data of POPIHN members and results of total official fuel consumption in the country shows substantial increases in sales at stations owned by oil companies, yet slightly smaller growths at independent companies' outlets.

Unlike in the previous years, better overall sales results were not accompanied by growths in the sales of premium fuels. The declines for this fuel type equalled (-1%) for petrol and (-5%) for diesel.

Last year, while observing price levels and trends on the market of new and second-hand cars, POPIHN assumed that there would be further sales growths of enhanced fuels, though they would most probably slow down. Unfortunately, the declines resulted to be greater than expected. The graph clearly shows that, in particular in case of petrol, the sales depend to a large extent on the price of this fuel type. There is still space for improvement in premium fuels' 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, in the coming years we will again observe positive sales volumes year-over-year. In 2018 there was a growth in the official sales of fuels, and, in particular, the standard ones, which, in turn, led to a decrease in the dynamics of sales of premium fuels, even though their overall sales volumes decreased by only 70,000 m³, with total sales volumes on the level of 1.6 m. m³. Drivers already learnt that in order to maintain the engine in a proper condition they should use premium fuels at least from time to time. At the same time it constitutes an additional benefit for our natural environment and eliminates harmful impact on the quality of air, especially in large urban agglomerations.

Thanks to a new official database on fuel logistics elaborated in 2018 by the Energy Regulatory Office with the use of information gathered by POPIHN members in 2018 it was possible to localize around 7,800 filling stations, out of which over 3,800 outlets were POPIHN members, both under domestic and international companies' logos. The above means the latter group grew by 2%. The increase was a result of carrying out new investment projects, opening some of the stations after their modernization, but also taking over a certain number of stations from the independent sector. At the same time work was under way on optimising the network and sales policy related to the change of brand, which was reflected in terminating some cooperation agreements. All in all, the number of oil companies' own stations grew by 1.3%, the number of stations operating under franchising formulas increased by 2%, and the number of stations under DODO arrangements witnessed a 1.1% growth.

Alongside the development of networks and investing in new outlets as well as modernizing the existing ones, we observed a growth in the number of stores located at filling stations. Altogether, at the end of 2018 the total number of stores located at POPIHN members' stations operating under the formula COCO+CODO was 2,701 (32 more than in 2017), out of which 2,659 stores (42 more than in the previous year) were engaged in commercial activities. The growth in the number of stores was accompanied by increasing turnovers in those stores. In relation to 2017 the increase in turnover at stations operating only under the formula COCO+CODO



Fot. CIRCLE K

(2,659 sites) equalled 16,4% and reached the level of about 5.4 bn PLN. The turnover of a single shop grew by 15,1% and on average was on the level of about 2 m. PLN.

Filling stations' operators owe a significant increase in the turnover to the introduction of non-trading Sundays in March 2018 as the ban did not cover fuels. Thanks to the sector's activities as well as the actions undertaken by other organizations gathering entities involved in trade until now it has been possible to cut back the attempts of limiting the functioning of station stores, as well as eliminating from station stores the sales of alcohol, tobacco and basic OTC drugs. Non-fuel goods, on the one hand, help to maintain a filling station, while on the other hand they are a source of most needed goods in locations where pharmacies or grocery shops do not operate on Sundays or during night time.

Graph in Fig. 23 shows sales in stores located at filling stations between individual months in comparison with the same months in 2017. We can clearly see the effects of the ban on trading in large-surface stores introduced in March 2018. One can also see that over time the customers were becoming more and more used to new shopping dates and at the end of the year filling stations were not as popular as in the months following the introduction of the ban. The sales growths were thus only slightly higher than in the same months in the previous years. Nonetheless, all months of 2018 recorded much better sales volumes than the year before, often twofold.

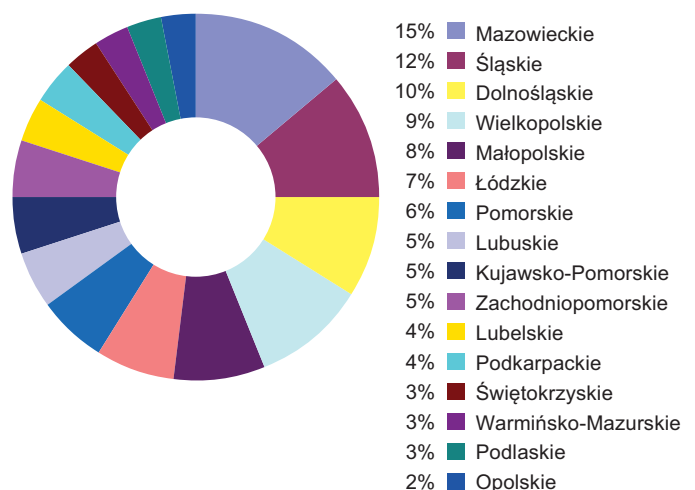
The results of the comparison of geographical distribution of fuel sales in Poland, based on data submitted by POPIHN members, show that in relation to 2017 no major changes were observed. The only novelty was the Kujawsko-pomorskie province swapping place with the Zachodniopomorskie. This time more fuels were sold closer to our western border. The province with the greatest demand for vehicle fuels is still Mazowieckie, whereas the

smallest demand can be observed in the Opolskie province. Sales in 5 provinces account for the overall sales volumes in the remaining 11. The biggest increase in sales volumes at the stations owned by POPIHN members was recorded in the provinces: Świętokrzyskie, Zachodniopomorskie, Lubuskie and Kujawsko-pomorskie. Despite overall increase in the sales volumes of fuels, in all provinces premium diesel sales witnessed a decline, while in 9 provinces less premium petrol was sold.

The graph shows total sales of fuels, diesel and autogas. 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.

FIG. 24 DISTRIBUTION OF RETAIL SALES OF FUELS BY POPIHN MEMBERS IN POLAND IN 2018 [%]

Source: POPIHN's own data



DEMAND FORECAST FOR THE POLISH MARKET UP TO 2030

The liquid fuel demand scenarios, elaborated by POPiHN for the coming years, take into account the latest trends on the liquid fuels market observed both in Poland and around the world. The timeframe of these scenarios this time extends until 2030. The scenarios were developed on the basis of the expertise of the employees of both the POPiHN members and the organisation's office, as well as the estimates for 2018 and market trends from the previous years. In the previous year the official fuel demand in Poland exceeded the forecast presented the year before as the baseline scenario for the Polish market. In line with the expectations, new legal solutions such as Fuel, Energy and Transport Packages, introduced in 2016 and 2017, as well as efficient activities of inspection services that applied newly-introduced legislation efficiently eliminated from the market the vast majority of fuel, which had been previously traded beyond official statistics. Thus it was possible to thoroughly eliminate from the market the majority of companies operating within grey and black economies, mostly in the segment of diesel, i.e. the fuel which to a significant extent shapes the results of the whole fuel sector. In addition, an increased demand for petrol and relatively small increases of fuel prices, as well as an increase of the vehicle fleet circulating on Polish roads by further 1.5 m. vehicles led to a situation in which it was possible to allocate greater amounts of fuel on domestic market than in the previous year. Elaborated scenarios include the changes currently taking place on the domestic and international crude oil markets, while a normalising situation in Poland enhances their reliability. The baseline and optimistic scenarios assumed that there would be further increase of efficiency in combating the irregularities on the Polish market, aiming to further eliminate those. It was also assumed that stable prices of crude oil and finished products would be maintained on international markets and that the USD-PLN exchange rate would remain stable. New infrastructure investments, to be implemented in Poland (to a large extent financed from the European Union funds) were taken into consideration as well. It was assumed that

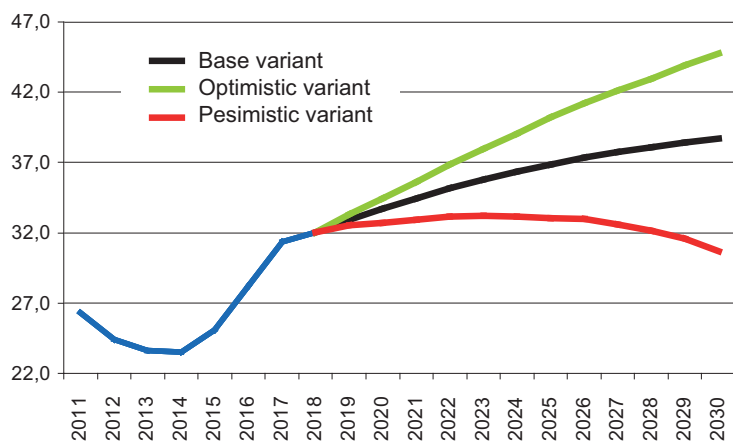
in the next few years there wouldn't be significant changes in the drivers' preferences, i.e. buying cars with petrol engines rather than diesel ones, especially in the segment of second-hand vehicles. It was also assumed that social subsidies in the form of 500+ programme would be maintained, that there 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, at least until 2025.

The baseline scenario assumes that the Polish economy will grow at a rate of about 4% annually, that the trend increasing the efficiency in combating the shadow economy in the coming years will continue and that the favourable price ratio between crude oil and fuels on international markets will be maintained. It has also been estimated that the range of fluctuations in the USD-PLN exchange rate will not exceed 10% of the level of 3.7 PLN, observed at the end of 2018.

The base variant scenario assumes that currently observed average oil prices can last for a longer period, but the prices ranging from 55 and 75 USD/bbl. Crude oil prices should remain on such levels for approximately 2 years, and then there is likely to be a systematic increase up to the level of approximately 80 – 85 USD/bbl annually. The baseline scenario assumes a stable situation in the international crude oil market (on the one hand agreements limiting the extraction and on the other hand increasing extraction from shale deposits). Such assumptions allow us to expect that 2019 will be another year with increases in liquid fuel consumption, and that this trend will be maintained in the coming years, yet at a slower pace. Nevertheless, even smaller increases in terms of percentage will be translated into multiplications in terms of 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 come back to the game on the passenger transportation market at the expense of cars with Diesel engine fuel, yet, most probably, in the light of currently observed policy of getting rid of the vehicles with Diesel engines in western Europe a decreasing interest in this type of fuel in our market will be slightly shifted in time. Increasing the efficiency of petrol engines, using hybrid vehicles and expecting that EU95 petrol prices will be lower than Diesel prices might result in lowering the demand for autogas, especially taking into consideration the fact that installing autogas in new petrol units are much higher than in case of older engine types, thus making it less profitable to switch to this type of fuel. The society becoming wealthier and lack of programmes efficiently promoting public transport will result in a further growth of car fleet circulating in Poland. New road investments, resulting in shorter travel time, will trigger the increase of motor traffic outside the cities at the expense of other means of transport, mainly rail. The role of public transport in medium-sized and big cities is expected to grow, which will be related to the costs of using individual vehicles, limiting the number of parking spaces (also by

FIG. 25 SCENARIO FOR LIQUID FUELS DEMAND IN 2018-2030 (in m. m³)

Source: POPiHN's own data



raising parking fees and introducing clean air zones); at the same time this type of transport will become more and more ecological thanks to using vehicles powered by alternative fuels. It is assumed that, just like in previous scenarios, a slightly downward demand trend for light fuel oil shall continue, related to new environmental protection norms which take into account combating smog in a more efficient way. In this variant, the official domestic market demand for liquid fuels in 2030 is currently being estimated at approximately 39 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, a slower development of the sector of vehicles running on alternative fuels and maintaining for 5 years a trend towards an increase in domestic vehicle transportation fleet (the individual, group and transport one), with a significant share of vehicles with Diesel engines. The most important assumption is an increase in the growth rate of domestic economy, with GDP of at least 5%. In this scenario the domestic market demand for liquid fuels in 2030 is estimated at around 45 m. m³.

The pessimistic scenario assumes a lower prospect for growth of the Polish economy on the level below 3%, a significant decline in the Polish zloty's (PLN) purchasing power or destabilisation of the international situation and substantial increases in the prices of crude oil. Such circumstances may lead to the necessity of raising taxes in Poland, as well as, as was almost always the case in the past, in the first place for the fuel sector, which might translate into significant increases of fuel prices. An increase in fiscal burdens and high fuel prices could, once again, get the grey and black fuel markets moving.

While observing the current liquid fuels market situation in Poland, we can assume that the baseline scenario seems to be the one most likely to unfold. Nonetheless, we need to remember that oil sector is extremely sensitive to all types of fluctuations in geopolitical or economic situation, especially among the biggest oil producers. One can say today that the effects of combating illegal fuel market are satisfactory and relevant inspection authorities are working very well. Nevertheless, in the future it will be crucial to monitor the market very closely, while the state needs to continue implementing preventive measures so that the grey economy does not recover. The temptation to achieve quick and big profits is and will be high, especially in case of a market developing in a stable way with a great demand for fuels supplied from abroad.

In the near term fuel production sector has nothing to fear as petrol and diesel, and, in Polish market conditions, also autogas will continue to dominate among energy carriers used in road transport. European trends pointing out electricity as transport fuel of the future are yet to be thoroughly analysed. 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



Fot. LOTOS

countries, including Poland, electric energy is mostly produced from coal. Currently electric vehicles in our country represent a tiny fraction in the whole car fleet and this situation is not very likely to change in the short term, nor even in the longer one. Furthermore, other alternative fuels such as biofuels or hydrogen still have to wait before they are applied on a wider scale. Even though the share of biofuels in traditional fuels will gradually grow, it will not be to the extent which could significantly decrease the demand for petroleum-based fuels. There are good prospects for hydrogen, yet in Poland there isn't a single filling station offering this fuel type. Much clearer prospects may occur for the market of vehicles run on LNG/CNG as there are plans to build filling stations offering this type of fuel. Nonetheless, in Poland the dominant position of autogas in traditional fuel sector is so strong that it will take a long time before new types of gas for fuelling vehicles have established their position on the market, despite tax incentives. 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 for sure continue, yet it can be temporarily slowed down by diesel vehicles being sold out across our western border. Over time the market will slowly start welcoming vehicles based on alternative fuels such as electricity, hydrogen, CNG, LNG or biofuels. Filling stations' operators have already begun preparing themselves towards this new situation, starting from installing electric chargers in current outlets in the towns and along main transport routes. This is the beginning of a revolution, yet whoever misses it, might then have problems with keeping afloat on 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. It is estimated that a gradual reduction of oil consumption to produce fuels will take place no sooner than after 2030, yet this prospect in the economy is by no means a distant one.

MOTOR FUEL PRICES

POPIHN's price forecasts presented at the last year's conference turned out to be correct: retail prices of liquid fuels grew in 2018. Both wholesale and retail prices of fuel rose. On average throughout the year the prices rose, yet the growths, in particular for petrol, were significantly slower in the last quarter, in which there were significant price reductions. Thus 2018 was the second consecutive year, after the years 2013-2016, with prices growing year by year. In the second and third quarters of 2018 the prices for both fuel types exceeded the level of 5 PLN/l. For the whole year a litre of EU95 petrol was on average 0.34 PLN more expensive, while a litre of diesel cost 0.48 PLN more than in 2017. These price increases were bigger than the ones observed in 2017, when EU95 petrol's price grew by 0.25 PLN/l and diesel's by 0.31 PLN/l. Autogas was also more expensive. An increase in the price of this fuel type equalled 0.15 PLN/l, i.e. 50% more than the increase observed in 2017. The retail price of EU95 petrol was exceeding the price of diesel from the beginning of the year until the beginning of October. Then the trend reversed and diesel was sold at a higher price than petrol. The average annual price difference between these two types of fuel was just 0.02 PLN, which means that for another year the costs of purchasing these fuel types were coming closer to each other, while the forecasts for 2019 assume that diesel prices will be maintained on a higher level compared to the prices of petrol. Over a long-term time frame we can observe that the prices grew since July 2017 until October 2018, when significant falls started, especially in the case of petrol. In 2018 the price range for EU95 petrol was from 4.58 and 5.09 PLN/l. For diesel the range was from 4.48 to 5.29 PLN/l. The difference between the lowest and the highest EU95 petrol price throughout the year equalled 0.51 PLN/l, whereas the same difference for diesel amounted to 0.81 PLN/l. It is almost 50% more than the one observed in 2017. At the end of the year the average price of EU95 petrol was very similar to the one recorded at the beginning of 2018. The price of diesel, however, presented a much higher level than at the beginning of the year, thus the difference between buying a litre of EU95 petrol at a filling

station and a litre of diesel equalled 0.29 PLN in favour of petrol. Despite higher costs of purchasing fuels, their consumption in the country grew, which, on average throughout the year, allowed filling stations' operators to earn better margins than in the previous year. The above was also significantly influenced by the situation in the last quarter of 2018. We should, however, bear in mind that there were also periods, in particular in the second and third quarter of 2018, when the margins were periodically very low.

Prices quoted at the pylons on Polish filling stations were, as always, influenced by the fluctuations on international crude oil and fuel markets and the ratio of the PLN purchasing power against the USD. Fortunately for Polish drivers this ratio somewhat strengthened, which made it possible to slightly limit the scale of price increases. The strengthening equalled the level of 4% and thus was comparable to the previous year's. The most important element shaping the price levels, namely average annual crude oil prices, reached the level of 71 USD/bbl, which was 31% above the 2017 level. The lowest quotation of crude oil price amounted to 51.2 USD/bbl at the very end of 2018. This was only 60% of the maximum quotation, which equalled slightly over 85 USD/bbl and was recorded at the very beginning of October. Since then crude oil prices started to decline. In the period of quotation growths the crude oil market reflected the expectations of the investors related to waiting for the introduction of oil-related sanctions on Iran and was repeatedly electricised with information on a possible trade war between the USA and China. Another element that influenced crude oil prices was the information on further reductions in the volume of crude oil produced by OPEC+ countries, which was aimed at preventing a possible surplus of supply over demand. Since it resulted that neither the sanctions imposed on Iran nor reducing the production influenced significantly on the level of crude oil supply worldwide, the quotations started falling significantly. High level of crude oil stocks and petroleum products in the USA, as well as a steadily growing shale oil extraction in that country had a stabilising effect on the market. Furthermore, a more normalised situation of African producers and a comeback, after previous temporary limitation of production, of Canadian crude oil did not favour further price increases on the oil market. Phenomena similar to the ones observed for oil were recorded for fuels traded on the international commodity stock exchanges. In this case too upward trends were maintained until October. It is worth noting that the increases recorded for fuels were smaller than the ones for crude oil, while the trends reflected by diesel prices were similar to the ones for crude oil. In the case of Premium petrol it was 10 percentage points less. The above shows that crude oil for another year was the element that influenced the trends on fuel markets. The worldwide growth of transport fuel demand was a constant phenomenon, yet it was the need to ensure the supplies that defined the prices. On the Polish market net wholesale prices, with minor changes in taxes (just the fuel surcharge), were shaped by the changes in stock market quotations of fuels and the changes in the PLN-USD exchange rate. The price reductions did not turn out beneficial for individual drivers and transport companies, but at the same time the state's budget

FIG. 26 PRICES FOR BRENT CRUDE AND THE USD EXCHANGE RATE IN 2018

Source: e-petrol.pl, POPIHN

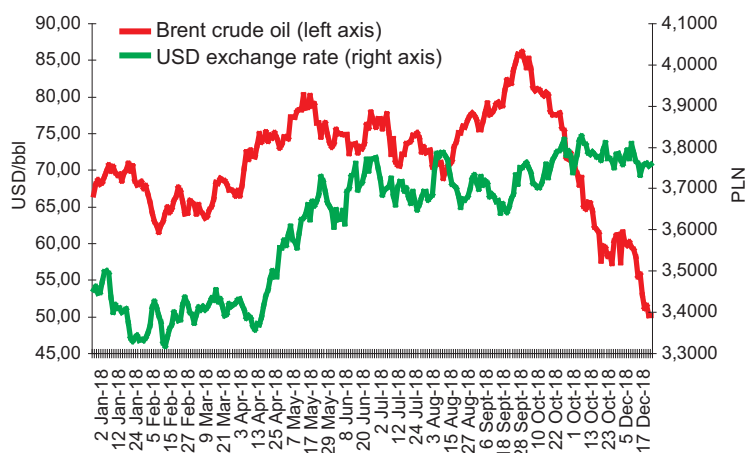


FIG. 27 COMPARISON OF ANNUAL AVERAGE PRICES FOR CRUDE OIL, LIQUID FUELS AND THE USD EXCHANGE RATE IN 2017 AND 2018

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

Description	2017		2018		Reference 2018 to 2017 2017=100
	Value	Units	Value	Units	
1	2	3	4	5	6
Prices for Brent	54,30	USD/bbl	71,00	USD/bbl	131
Prices for Premium petrol 10 ppm S	564,1	USD/tonne	676,70	USD/tonne	120
Prices for diesel 10 ppm S	500,7	USD/tonne	643,3	USD/tonne	129
USD exchange rate	3,7783	PLN	3,6113	PLN	96

THE WORLDWIDE GROWTH OF TRANSPORT FUEL DEMAND WAS A CONSTANT PHENOMENON, YET IT WAS THE NEED TO ENSURE THE SUPPLIES THAT DEFINED THE PRICES.

recorded increasing VAT revenues. Besides, additional fiscal revenues and the profits of oil companies were obtained thanks to bigger official sales volumes of liquid fuels, after efficient controlling of the grey and black fuel market segment, positive economic increase and a 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 and the PLN exchange rate against the US dollar. Fiscal levies that have to be contributed to the state budget are also taken into consideration. The changes in the import parity, caused by price changes of fuels, 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 by the OPEC+ countries, introduced in 2017, were complied with in 2018, but at the same time the US shale sector's production reached new maximum levels and the USA became the biggest crude oil producer. A significant part of this production was sent to international markets, including the Polish one. As shown by the annual results, production limiting activities brought the expected outcome in the form of lowering oil surplus on international markets and raising crude oil quotations. At the same time, at the end of 2018 there was a threat of oversupply of crude oil, which pushed the OPEC countries and Russia to sign another preventive agreement on limiting the production and thus reducing the scale of lowering crude oil prices on international markets. If it is possible to maintain in force the introduced production limits, there is a chance that the quotations exceed the level of 65 USD/bbl in the nearest future. Otherwise the quotations may quickly fall to the level below 50 USD/bbl. Higher quotations will probably result in the increase in 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 on international markets are unlikely to grow significantly. It is estimated that as early as in the first half of 2019 American oil production will break another record, exceeding the

FIG. 28 FLUCTUATIONS IN BRENT CRUDE PRICES AND IN THE EXCHANGE RATE OF THE USD IN 2018 COMPARED WITH 2017 AVERAGES [%]

Source: POPIHN and e-etrol.pl

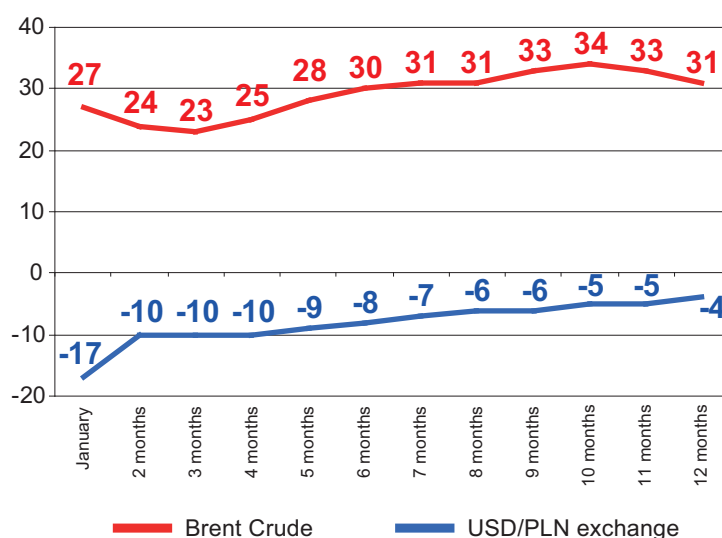
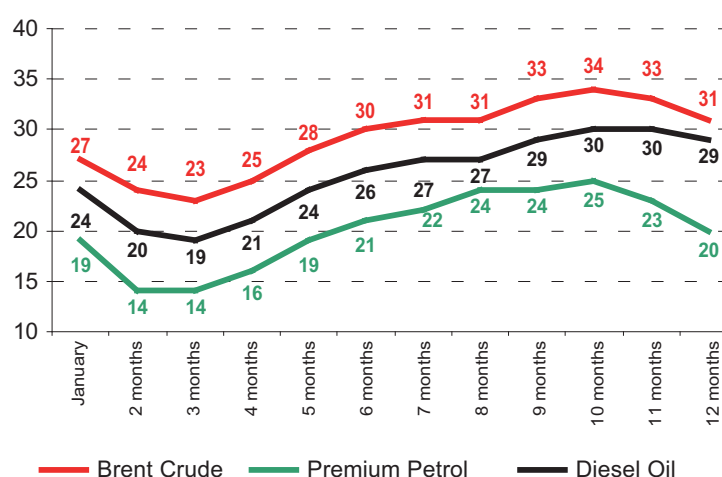


FIG. 29 FLUCTUATIONS IN CRUDE OIL AND FUEL QUOTATIONS IN 2018 COMPARED WITH 2017 AVERAGES [%]

Source: POPIHN and e-petrol.pl



production level of 12 m. barrels daily. This is, indeed, good news for drivers as it guarantees maintaining fuel prices at the level similar to the one in 2018.

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 by the buyers of fuels. In Poland taxes constitute about 50% of 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 on a smaller scale than it could result from the increases in quotations, amounting to 13% for petrol and 20% for diesel. The above is twice as much as the increases witnessed in 2017.

Factors affecting domestic wholesale and retail prices (prices of crude oil, prices of main fuels and the dollar exchange rate) were as follows in 2018 (Fig. 27).

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

in the crude oil quotations and an increase of the value of PLN against US dollar towards the end of the year resulted in decreases in wholesale and, consequently, retail prices for end consumers.

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

The upward trend in oil quotations was visible from the beginning of April, with slight falls in August and significant declines at the end of the year. Diesel recorded greater changes in increasing quotations than Premium petrol. Both fuel types became more expensive as a result of increasing crude oil quotations, as well as due to growths in worldwide demand for fuels.

The situation on the Polish market almost automatically reflects the trends observed on the international crude oil and fuel markets. Almost, as Poland has its national currency and the price levels are influenced by the PLN-USD exchange rates. Prices in the country are shaped by the so-called import parity, which is influenced by changes in the prices of fuels, PLN-USD exchange rate and tax burdens that prevail on the domestic market. In 2018 global fuel prices increased on



Fot. SHELL

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

Source: PKN ORLEN SA, Grupa LOTOS SA, POPIHN

Description	2017		2018		Reference 2018 to 2017 2017=100
	Value	Units	Value	Units	
1	2	3	4	5	6
EU95 petrol gross (without VAT)	3 593	PLN/1000 l	3 840	PLN/1000 l	107
Excise	1 540	PLN/1000 l	1 540	PLN/1000 l	100
Fuel surcharge	129	PLN/1000 l	131	PLN/1000 l	102
EU95 petrol net	1 924	PLN/1000 l	2 169	PLN/1000 l	113

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 SA

Description	2017		2018		Reference 2018 to 2017 2017=100
	Value	Units	Value	Units	
1	2	3	4	5	6
Diesel with 0.001 S gross (without VAT)	3 494	PLN/1000 l	3 913	PLN/1000 l	112
Excise Diesel with S 0,001%	1 171	PLN/1000 l	1 171	PLN/1000 l	100
Fuel surcharge	288	PLN/1000 l	293	PLN/1000 l	102
Diesel with S 0,001% net	2 035	PLN/1000 l	2 449	PLN/1000 l	120

FIG. 32 COMPARISON OF MOTOR FUELS' RETAIL PRICES

Source: POPIHN's own study on the basis of data from e-petrol.pl, WNP

Description	2017		2018		Reference 2018 to 2017 2017=100
	Value	Units	Value	Units	
1	2	3	4	5	6
Average retail price of EU95	4,59	PLN/litre	4,93	PLN/litre	107
Average retail price of ON	4,43	PLN/litre	4,91	PLN/litre	111
Average retail price of autogas	2,08	PLN/litre	2,23	PLN/litre	107

average, but at the same time there was a slight strengthening in the PLN purchasing power against the USD, whereas tax burdens grew by only 2% increase in the fuel surcharge. Changes in annual ex-refinery prices for Polish oil companies are shown in tables 30 and 31.

The increases of the average net prices of EU95 petrol in the case of Polish producers, directly related to the stock market quotations, were lower than the increases of these quotations, which was partially caused by strengthening of the Polish zloty's purchasing power, but also crude oil transaction prices and logistics costs.

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

Similarly as in the case of petrol, the increase in net domestic diesel fuel prices did not overlap with the degree of increases on international markets.

In 2016 EU95 petrol cost (on average in the year, retail price) 0.22 PLN/l more than diesel. In 2017 this price difference was only 0.16 PLN/l, while in 2018 it decreased to the level of 0.02 PLN/l. We can see that we are gradually moving towards a situation in which diesel (on average in the year) will be more expensive than EU95 petrol. Over short periods we did witness such price levels in the past, yet it seems as if we are entering the times when such levels are going to constitute a standard. The above was mainly caused by the changes on international markets, then reflected by the domestic market. Furthermore, in the near future (as of 2020) new legislation comes into force as regards supplying sea-going vessels in fuel with low sulphur content, which will translate into an increased demand for diesel, and an increase in the demand entails higher prices.

A comparison of the retail prices of EU95 petrol, autogas and diesel in the years 2017-2018 is shown in the table (Fig. 32).

The margins on fuel sales in 2018 were almost twice higher, compared to the ones observed the previous year, whereas only in the case of diesel they remained on a similar level. 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 the ones in which the profits obtained from fuel sales were minimal and definitely did not allow to maintain and develop a filling station. The price relations EU95 petrol/autogas remained on a level which encouraged drivers whose vehicles are equipped with a dual fuel supply system to purchase autogas. The cost-effectiveness of this choice, i.e. purchasing autogas instead of petrol, remained on the level observed in 2017. The autogas to EU95 petrol price ratio was on average almost 45% all year round. The price trends of individual fuels on the domestic market are shown by the graphs in Fig. 33 and 34.

The downtrend in average annual fuel prices, which started in 2012 and was stopped in 2017, continued in 2018, as in that year we also observed increases in average annual prices. The regulations aiming at increasing the quotations of crude oil and fuels, which were undertaken by the countries producing crude oil, led to a situation of increases in international quotations and, in turn, domestic prices. Current market situation suggests that if the new tightening-up rules

FIG. 33 RETAIL PRICES OF EU95, DIESEL, LPG AND LFO IN 2006-2018 [PLN/1000 l]

Source: POPIHN's own study on the basis of data from e-petrol.pl, WNP

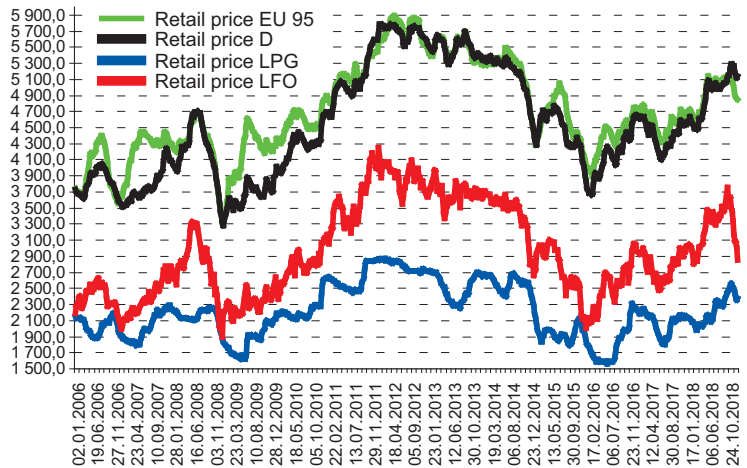


FIG. 34 RETAIL PRICES OF EU95, DIESEL, LPG AND LFO IN 2018 [PLN/1000 l]

Source: POPIHN's own study on the basis of data from e-petrol.pl, WNP and ARE

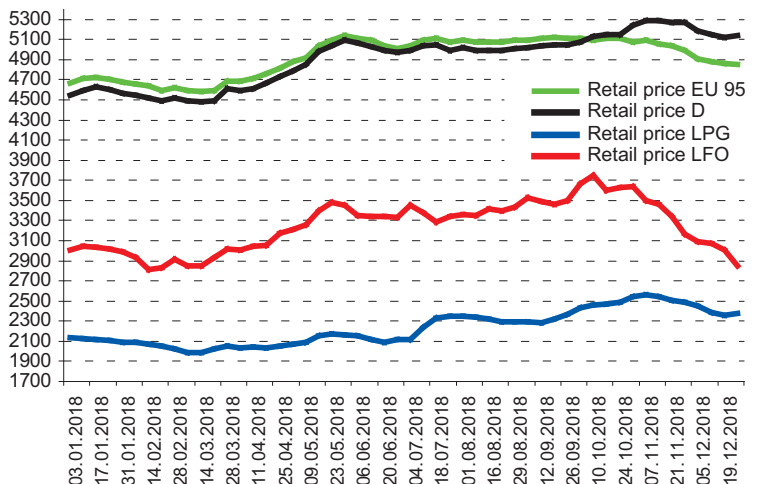
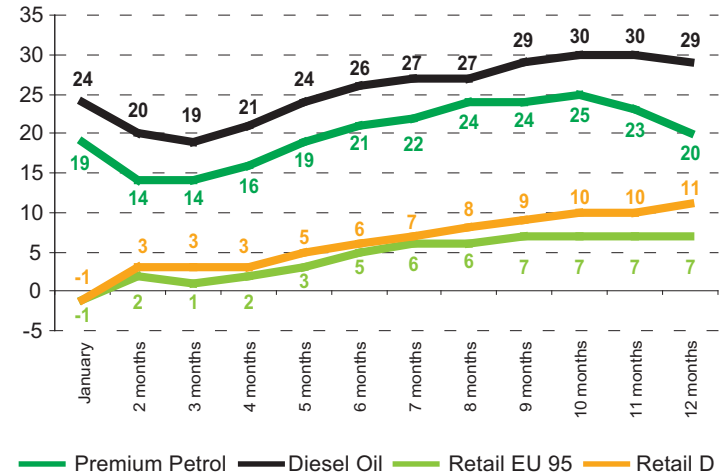


FIG. 35 CHANGES IN QUOTATIONS FOR FUELS AND IN RETAIL PRICES OF EU95 PETROL AND DIESEL IN POLAND IN 2018 COMPARED TO 2017 AVERAGE PRICES [%]

Source: POPIHN, epetrol.pl



in the production of crude oil are maintained, then it is possible that the whole 2019 is going to be finalised with the prices higher than the previous year's ones. It seems likely, however, on condition that consequent limitations in crude oil production be maintained on a global scale. Otherwise the prices at filling stations might decline again. The graph 35 shows the relations between quotations on the international commodity stock exchanges and retail prices of fuels in Poland.

In 2018 few filling stations managed to reach the levels of sales margins ensuring keeping a filling station in operation thanks to fuel sales only. We have reiterated this fact for years; it is once again 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. Such activities can eventually result in a significant reduction in the number of places where drivers will be able to fill up their tanks or in significant increases of prices of fuel offered at stations without shops.

The factors determining the level of retail prices in various parts of the country remained unchanged. The most important ones were the level of demand and the scale of competition between different operators, as well as the comprehensiveness of offered services. Price calculations in the vast majority of the country (maybe except the areas in the proximity of the eastern border) were deprived of the element reflecting the competitiveness of the grey and black market. Loyalty programmes and marketing campaigns initiated by filling stations have started to play a more and more important role.

FIG. 36 COMPARISON OF TAX BURDENS ON MOTOR FUELS IN 2017 AND 2018

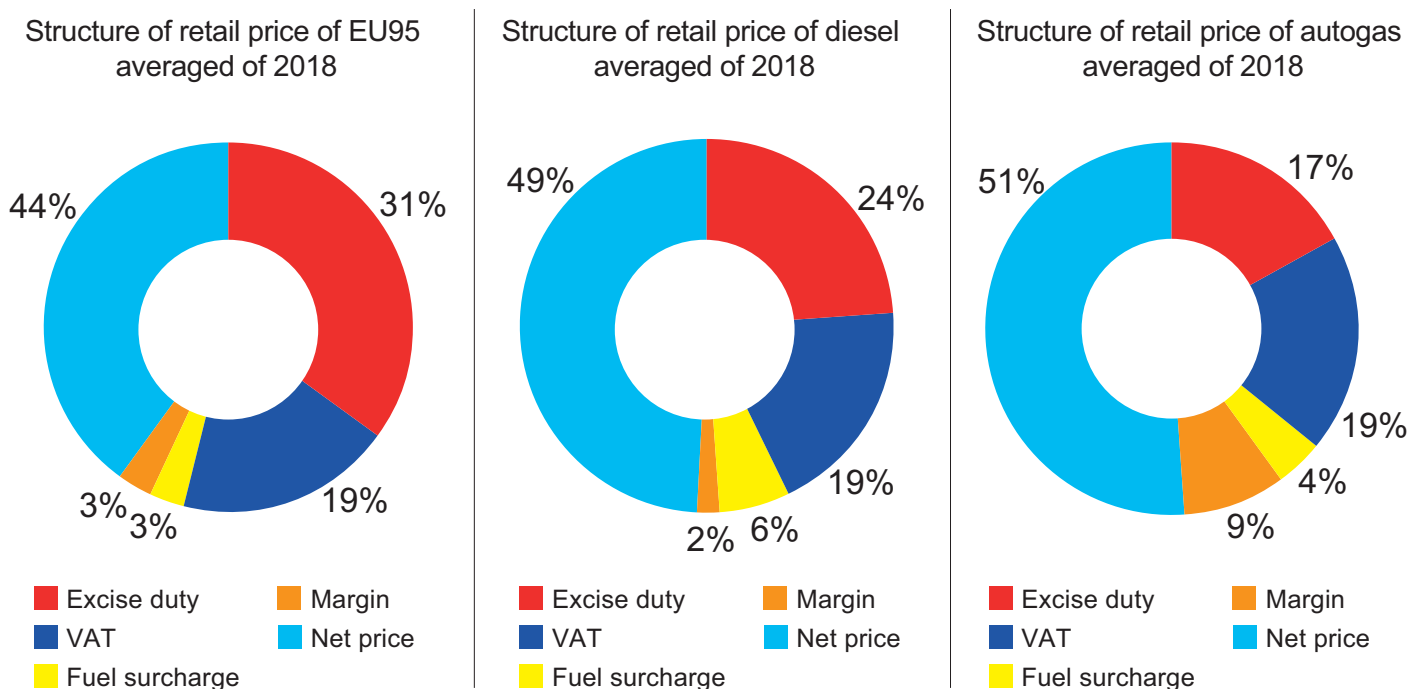
Source: POPIHN's own data

Description	2017		2018		Reference 2018 to 2017 2017=100
	Value	Units	Value	Units	
1	2	3	4	5	6
Total taxes for EU95 (VAT+excise+fuel surcharge)	2 527	PLN/1000 l	2 593	PLN/1000 l	103
Total taxes for ON (VAT+excise+fuel surcharge)	2 287	PLN/1000 l	2 382	PLN/1000 l	104
% share of taxes in retail price of EU95	55	%	53	%	96
% share of taxes in retail price of ON	52	%	49	%	94

IN POLAND TAXES CONSTITUTE ABOUT 50% OF FUEL PRICE, WHICH GUARANTEES HIGH INCOMES FROM THE OIL SECTOR GENERATED FOR THE STATE'S BUDGET.

FIG. 37 STRUCTURE OF RETAIL PRICE OF MOTOR FUELS IN 2018

Source: POPIHN's own data



Drivers have already got used to the fact that during different seasons of the year various regions of the country see significant fuel price differentials and they know where to fill up at a good price. Nevertheless, quite a big group of drivers increasingly buy fuel at stations along express ways and motorways, where the prices tend to be higher. They pay more, but they 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. In 2018 the most expensive fuel in the country was sold in the following provinces: Mazowieckie, Małopolskie, Podkarpackie and Zachodniopomorskie. During the summer and winter holidays, as usual, prices were much more expensive along main transit routes and in the resorts. The factors which determine retail prices in Poland are taxes imposed on fuels. Figure 36 presents average tax burdens for motor fuels in 2018.

FIG. 38 STRUCTURE OF RETAIL FUEL PRICES IN 2017 AND 2018 (IN PLN/L)

Source: POPIHN's own data

	Eurosuper 95 petrol						Diesel						Autogas					
	Retail price	Excise	VAT	Fuel surcharge	Margin	Net price	Retail price	Excise	VAT	Fuel surcharge	Margin	Net price	Retail price	Excise	VAT	Fuel surcharge	Margin	Net price
Average 2017	4,59	1,54	0,86	0,13	0,14	1,92	4,43	1,17	0,83	0,29	0,10	2,04	2,08	0,38	0,39	0,09	0,18	1,05
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	1,15
% change	7,4	0,0	7,4	0,0	18,6	13,0	10,8	0,0	10,8	0,0	-19,3	20,1	7,2	0,0	7,2	0,0	12,4	9,5

FIG. 39 AVERAGE RETAIL PRICES AND TAXES IN EU MEMBER STATES AND IN POLAND AT THE END OF DECEMBER 2018 IN EUR/1000 L

Source: Weekly Oil Bulletin EIA

	Eurosuper 95 petrol					Diesel (EN 590)					VAT [%]
	Sale price	Price without taxes	Excise	VAT amount		Sale price	Price without taxes	Excise	VAT amount		
	1	2	3	4	5	6	7	8	9	10	11
Austria	1 212,0	516,6	493,4	202,0		Austria	1 219,0	606,2	409,6	203,2	20
Belgium	1 326,0	495,7	600,2	230,1		Belgium	1 454,3	601,7	600,2	252,4	21
Bulgaria	1 000,9	471,1	363,0	166,8		Bulgaria	1 090,7	578,6	330,3	181,8	20
Croatia	1 258,4	485,3	521,4	251,7		Croatia	1 276,5	607,9	413,3	255,3	25
Cyprus	1 206,6	524,2	489,7	192,7		Cyprus	1 296,2	628,5	460,7	207,0	19
The Czech Republic	1 230,1	519,0	497,6	213,5		The Czech Republic	1 257,1	614,5	424,4	218,2	21
Denmark	1 502,8	583,6	618,6	300,6		Denmark	1 338,1	648,8	421,7	267,6	25
Estonia	1 260,0	487,0	563,0	210,0		Estonia	1 310,0	598,7	493,0	218,3	20
Finland	1 484,0	522,9	673,9	287,2		Finland	1 469,0	724,8	459,9	284,3	24
France	1 431,9	501,9	691,4	238,7		France	1 424,7	577,7	609,6	237,5	20
Greece	1 510,0	507,6	710,1	292,3		Greece	1 368,0	682,1	421,1	264,8	24
Spain	1 211,7	540,1	461,3	210,3		Spain	1 163,6	594,3	367,4	201,9	21
The Netherlands	1 516,0	466,5	786,4	263,1		The Netherlands	1 299,0	575,7	497,9	225,4	21
Ireland	1 399,0	529,7	607,7	261,6		Ireland	1 318,0	572,5	499,0	246,5	23
Lithuania	1 119,4	490,7	434,4	194,3		Lithuania	1 114,9	574,4	347,0	193,5	21
Luxembourg	1 137,0	509,7	462,1	165,2		Luxembourg	1 084,0	591,5	335,0	157,5	17
Latvia	1 210,9	515,3	485,4	210,2		Latvia	1 204,1	612,8	382,3	209,0	21
Malta	1 360,0	603,2	549,3	207,5		Malta	1 230,0	570,0	472,4	187,6	18
Germany	1 425,0	543,0	654,5	227,5		Germany	1 299,0	621,2	470,4	207,4	19
Portugal	1 435,0	507,5	659,2	268,3		Portugal	1 310,0	593,9	471,1	245,0	23
Romania	1 189,9	491,3	424,6	174,0		Romania	1 174,9	592,4	394,9	187,6	19
Slovakia	1 257,0	503,8	543,7	209,5		Slovakia	1 220,0	619,0	397,7	203,3	20
Slovenia	1 228,5	460,2	546,8	221,5		Slovenia	1 266,4	569,1	468,9	228,4	22
Sweden	1 410,3	504,9	623,3	282,1		Sweden	1 491,7	748,1	445,3	298,3	25
Hungary	1 089,1	478,1	379,5	231,5		Hungary	1 210,2	603,9	349,0	257,3	27
The Great Britain	1 346,4	477,3	644,7	224,4		The Great Britain	1 460,2	572,2	644,6	243,4	20
Italy	1 520,4	517,8	728,4	274,2		Italy	1 461,0	580,1	617,4	263,5	22
POLAND	1 127,9	524,9	388,7	214,3		POLAND	1 195,4	627,8	340,5	227,1	23
European average	1 296,7	510,0	557,2	229,5		European average	1 285,9	610,3	448,0	227,6	
Price in Poland against average European price	87%	103%	70%	93%		Price in Poland against average European price	93%	103%	76%	100%	

FIG. 40 RETAIL PRICES OF EU95 PETROL IN EU MEMBER STATES AND IN POLAND AT THE END OF DECEMBER 2018

Source: Weekly Oil Bulletin EIA

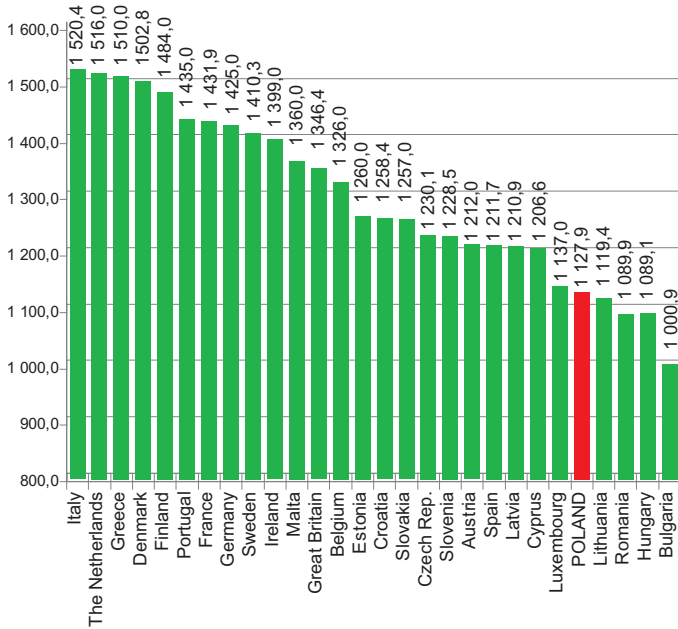


FIG. 41 RETAIL PRICES OF DIESEL IN EU MEMBER STATES AND IN POLAND AT THE END OF DECEMBER 2018

Source: Weekly Oil Bulletin EIA

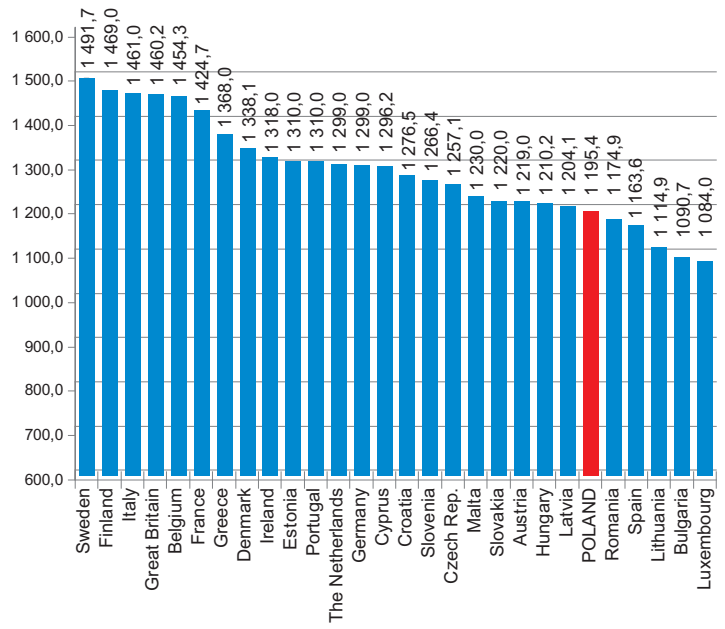


FIG. 42 SHARE OF TAXES IN RETAIL PRICE OF EU95 PETROL IN EUROPEAN COUNTRIES AT THE END OF DECEMBER 2018

Source: POPIHN's own data

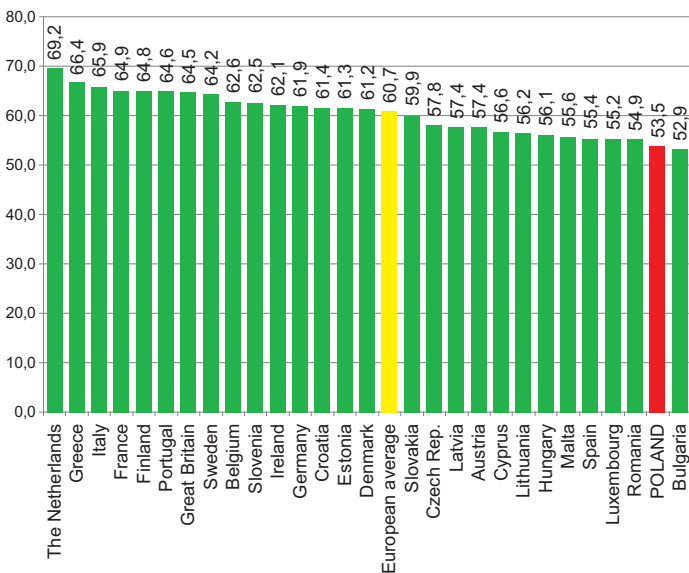
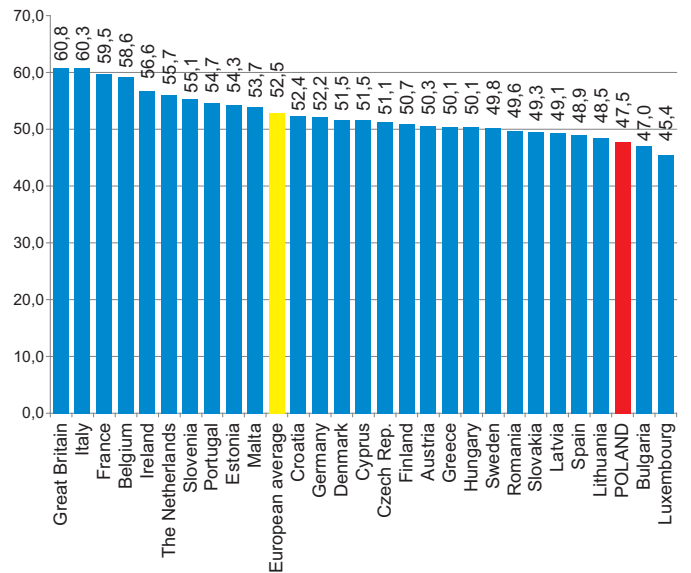


FIG. 43 SHARE OF TAXES IN RETAIL PRICE OF DIESEL IN EUROPEAN COUNTRIES AT THE END OF DECEMBER 2018

Source: POPIHN's own data



In 2018 the only change in taxes on fuels was raising the fuel surcharge by 2%. Excise for petrol, diesel and autogas did not undergo any changes. The VAT did not change either, remaining at the level of 23% of net price increased by specific taxes (excise, fuel surcharge), yet even a slight increase in the fuel surcharge raised the basis for

calculating taxes. On average throughout the year the tax burdens included in fuel prices rose in relation to 2017. This was mainly caused by an increase in net fuel prices along with the corresponding VAT. In monetary terms it was 66 PLN for EU95 petrol and 95 PLN for diesel more to pay to the state for every 1000 litres of sold fuel. It is almost

a twofold volume when compared to the increases recorded in 2017.

Higher retail prices of petrol and diesel fuels entailed a fall in the total taxation share in the end consumer price. That decrease equalled 4% and 6%, respectively, for EU95 petrol and diesel. The excise tax and the fuel surcharge are specific taxes not related to the net price and therefore their share in the price decreases alongside the increase in the net price. VAT is calculated as a percentage of the net price, excise tax and fuel surcharge included, so it is a percentage of the net price and a tax on other tax burdens. On average, in 2018 taxes represented 53% of EU95 petrol and 49% of diesel retail price. This was, respectively, 2 and 3 percentage points less than in 2017.

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 the 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 2018.

Continuing the trends from the previous years, throughout the whole 2018 fuel prices in Poland (converted into euro) were among the lowest in the European Union. Such was the case for both petrol and diesel. At the end of 2018 domestic retail prices of EU95 petrol were 13% lower and those for diesel 7% lower than the average prices for the whole European market. Compared to December 2017, this is 1 percentage point less for EU95 petrol and 4 percentage points less for diesel.

In December 2018 domestic net prices (excluding taxes and converted into euro) of EU95 petrol and diesel were higher than the average European prices by 3% for both types of analysed fuel. The above situation differs from the one observed in the previous years, when Polish net prices were usually lower than the average European prices. 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 the margins in Poland played a significant role in placing our prices among other EU prices.

At the end of 2018 for EU95 petrol the difference between the highest and the lowest net price observed in EU countries was EUR 143 (which is EUR 10 less than in the previous year), whereas the difference between the highest and the lowest retail price was EUR 520 per 1000 litres (i.e. EUR 13 less than in the previous year). Thus there was a decrease in the net price spread and at the same time the difference between the prices at the dispensers was reduced. For diesel the difference between net prices equalled EUR 179 per 1000 litres, and the difference between retail prices was EUR 408 per 1000 litres. Also in this case there were declines in the difference between net prices, as well as retail ones. The decreases equalled 69 and 40 euro/1000 litres, respectively.

Poland is one of the European countries with the highest applicable rate of VAT for fuels, but due to relatively low (after conversion into euro) net prices the actually paid VAT continues to be in the middle of the European rates. At the end of December 2018 the difference between the amount of VAT paid on EU95 petrol, compared to the EU

average, was 7%, which was 1 percentage point less than in the previous year. In the case of diesel Polish VAT amount was equal to the EU average. The amounts of excise tax paid (after conversion into euro, including fuel surcharge) respectively for EU95 petrol and diesel were 30% and 23% lower than the European averages. This is twice more than the year before.

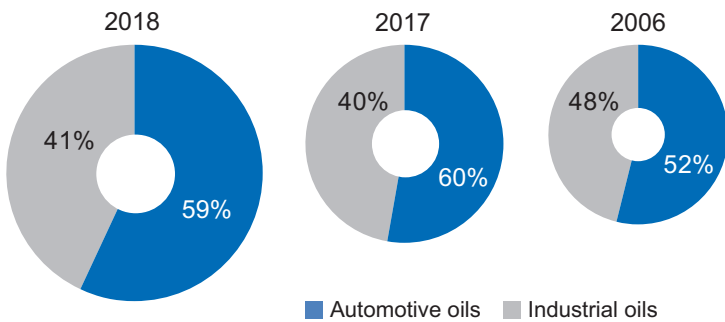
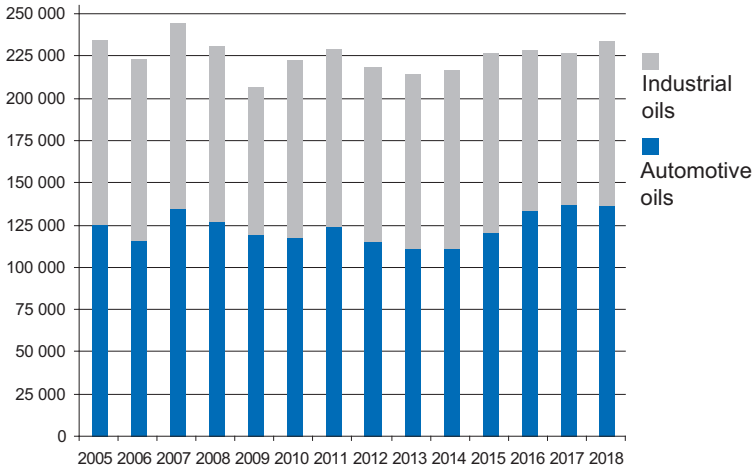
In December 2018 in Europe EU95 petrol was the cheapest in Bulgaria, Hungary, Romania, Lithuania and Poland. Diesel was cheaper (than in Poland) at filling stations in: Luxembourg, Bulgaria, Lithuania, Spain and Romania. Therefore it was profitable to come to Poland from any EU country directly neighbouring with us in order to fill up one's car completely. We are talking about average prices in a given country, yet there were cases of stations located in Germany close to the Polish border, at which in short terms it was possible to purchase diesel at a cheaper price than at our filling stations located in the border areas. In the case of petrol these relations remained on the levels observed for years, i.e. it was cheaper in Poland. Traditionally fuels across Poland's eastern border, in non-EU member countries, were cheaper than in Poland.

Analyses show that when buying fuel across the entire EU, the taxes which drivers have to pay constitute over 50% of the EU95 petrol price paid at the dispensers. The situation is similar when we analyse diesel, yet in this case the tax share in some countries is below 50%. As we can see in the graphs picturing tax share in fuel prices in different European countries, the Poles, when compared to other European nations, are burdened with slightly lower taxes than the majority of EU nationals. When we compare December 2018 and December 2017, the difference between the highest and lowest share decreased by 0.2 percentage point for EU95 petrol and amounted to 16.3 percentage points. For diesel this difference fell by 2 percentage points and amounted to 15.4 percentage points. The lowest tax share in the price of EU95 petrol was recorded in Bulgaria, and in the price of diesel – in Luxembourg, i.e. a country with the lowest VAT for fuels. 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.

Analysed data show that Polish drivers pay slightly less for filling up their cars than the vast majority of the representatives of other EU member states. We should, however, bear in mind the correlations 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 shifted upwards. Just like in previous years, for most part of the year fuel prices at Polish filling stations attracted our western and southern neighbours to fill up their cars at our side of the border. As in the past, it was worth filling the tanks up to the top before leaving Poland and return from a foreign journey with an almost empty tank. The situation on the eastern border looked completely different, which, in turn, encouraged to fill up beyond Poland.

FIG. 44 TOTAL MARKET FOR LUBRICATING OILS IN 2018 (TONNES)

Source: POPIHN's own study



LUBRICATING OILS MARKET

Lubricating oils market overall

In 2018 the Polish market of lubricating oils reached the level of 234,624 tonnes, which is a 3.33% y/y increase.

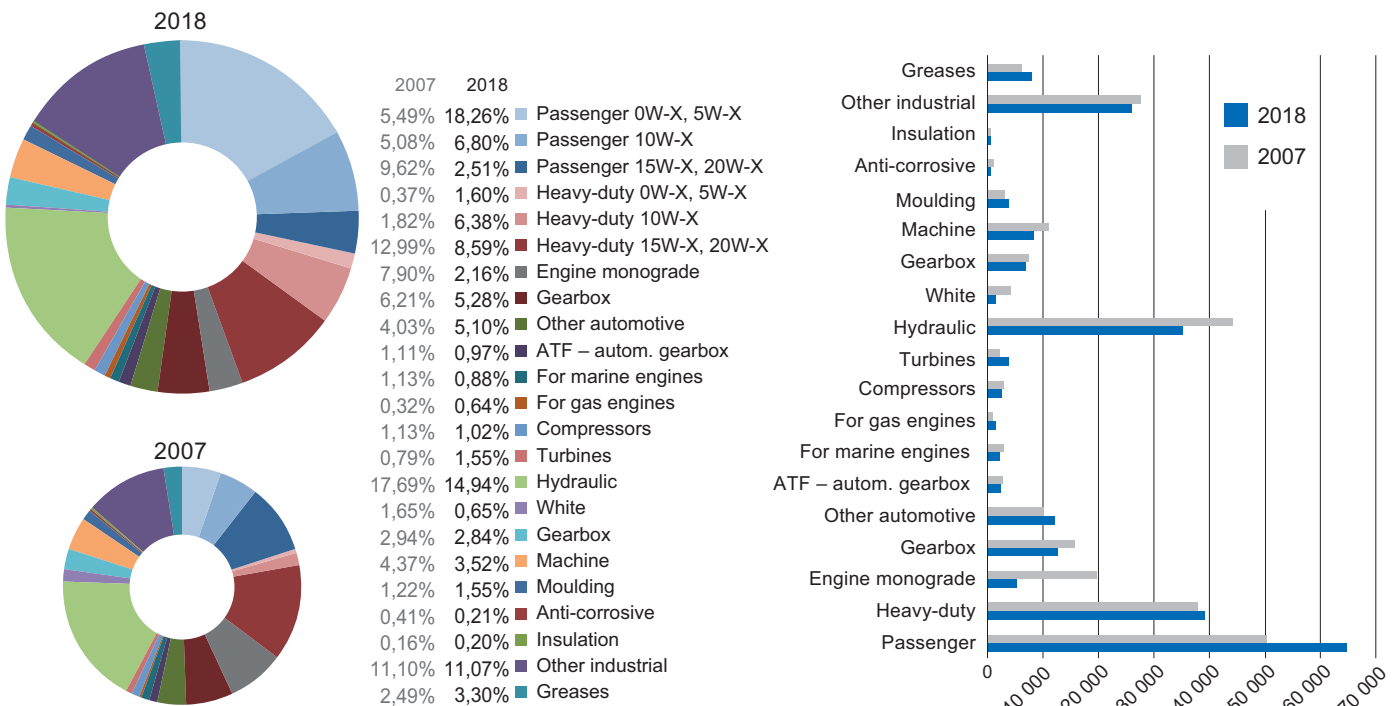
The market as a whole continues to be stable, and the stabilization has been basically ongoing since the beginning of the current decade. Since the end of 2010 yearly fluctuations were in the range not exceeding +/- 5%, while the average market volume in that period amounted to 224,545 tonnes, which could be regarded as market equilibrium. On the other hand, over the past 13 years the average market volume equalled 224,264 tonnes, with the biggest fluctuations observed in 2007 (+9,48%) and 2009 (-10,44%).

The above stability of the market is quite striking compared to a very high level of economic growth, which in 2018, according to initial estimates, was 5.1% of GDP. It can be partially accounted for by a still observed trend consisting in substituting mineral oils by new-generation synthetic oils, whose improved durability translates into longer drain intervals, as well as a certain weakening of the condition of the automotive industry, even though the situation within the sector is not homogeneous.¹ Another explanation might be an expansion of grey and black economy on the lubricant oil market, indicated by some entities operating in the sector.

Over the past 13 years the division into automotive and industrial segments has been stable, yet the share of the first one is slowly beginning to grow. In 2006 the automotive segment share equalled 52% of the total sales volumes, while in 2018 its share amounted to 59%.

FIG. 45 COMPARISON OF THE STRUCTURE OF THE ENTIRE MARKET FOR LUBRICATING OILS IN 2018 AND 2007 (in % and in tonnes)

Source: POPIHN's own data



¹ According to the Central Statistical Office, from January to August 2018 331,000 cars were produced in Poland, i.e. 14% less than in the previous year (which probably means that the production in 2018 is likely to have been the lowest since 2003), yet at the same time since 2008 the production value of car accessories has grown threefold, of engines three and a half times, and of electric parts for the engines as much as thirteen times. The production of buses is also increasing.

Major changes in the overall market structure are noticeable rather in a multi-annual term. From this perspective, above all, we can notice certain changes in the engine oils segment – 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 18.34% in 2018. The above means that this group continues to be the biggest one on the market, placing itself ahead of hydraulic oils for industry. Simultaneously, the biggest decline was recorded for mineral oils for passenger cars, heavy-duty vehicles, as well as monograde oils (respectively: from 9.6 to 2.5%, from 13 to 8.6% and from 7.9 to 2.17%).

In comparison with the automotive segment, in the area of industrial oils application we have been observing a multi-annual stabilization, typical of mature, fully formed markets, with a dominating share of hydraulic oils (15%) and a diversified category of 'other industrial' (11.12%).

Engine oils for the automotive industry

Total sales volumes within the automotive segment in 2018 amounted to 137,291 tonnes, which practically means that it did not change in comparison to the previous year. This time passenger car and heavy duty engine oils segment behaved in an almost identical way and did not practically witness any changes.

On the other hand, approximately 46.5% of all lubricating oils sold in Poland are engine oils for the automotive industry. Within the automotive segment they account for around 80%. In 2018 in Poland over 108,604 tonnes of engine oils of all types were sold. In the previous year the sales volumes

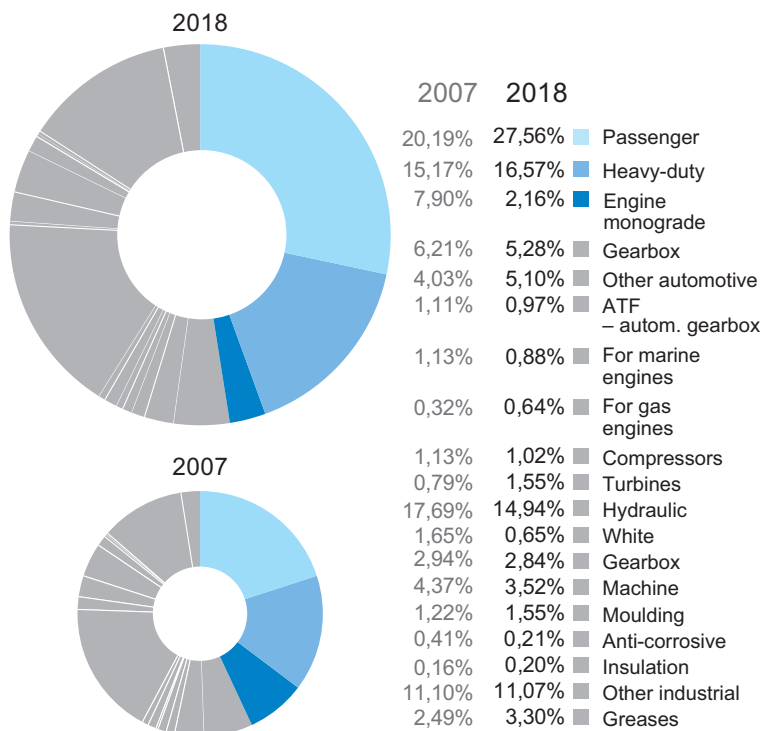
amounted to approximately 109,057 tonnes, so the level was practically unchanged. It is, however, worth mentioning that the level of stabilization, which in this segment has been observed for two years, is very high, especially for Polish circumstances. Let us remind that in 2016 the sector witnessed a record-breaking growth, as the overall sales volumes of all engine oils amounted to 111,113 tonnes. To compare, average annual sales volumes from the past 12 years in this segment equalled 101,369.80 tonnes.

In the sales structure of engine oils, in which over the past 12 years we have experienced significant changes related to modernisation of car fleet, the share of synthetic and semi-synthetic oils (i.e. low- and 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 39.44% and since 2007 it has grown by almost 27 percentage points. In the same period the share of mineral oils for passenger cars shrank from over 18% to 5.4%, and in the case of monograde oils it shrank from almost 37% to 4.66%. Similar changes are taking place in the segment of oils for heavy-duty vehicles, yet the dynamics of observed trends is slightly lower.

Similar trends are also being observed on the French market, significantly more advanced in terms of car fleet, which clearly shows that the trend observed in Poland will continue in the coming years, alongside the modernisation of the car fleet. What can it lead to? In case of France, the share of synthetic oils for passenger cars already in 2017 reached 57% of the whole engine oils segment, whereas oils for passenger cars already constitute ¾ of the segment, while monograde oils are practically disappearing from that market.

FIG. 46 AUTOMOTIVE ENGINE OILS AGAINST THE OVERALL LUBRICATING OILS MARKET IN POLAND IN %

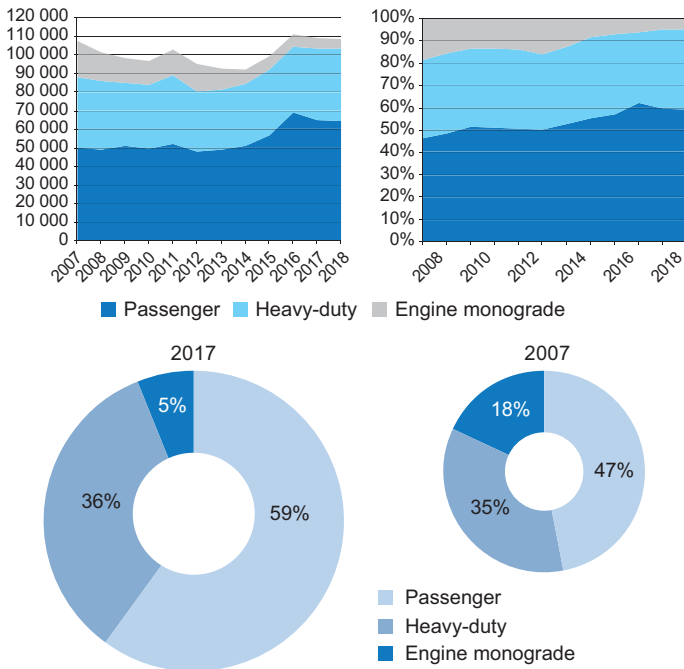
Source: POPIHN's own study



Fot. FUCHS OIL

FIG. 47 CHANGES IN THE STRUCTURE OF THE AUTOMOTIVE ENGINE OILS SEGMENT AGAINST SALES IN ANNUAL TERMS, TONNES (LEFT CHART) AND IN % (RIGHT CHART), IN ANNUAL TERMS

Source: POPIHN's own study



Passenger cars motor oils (PCMO)

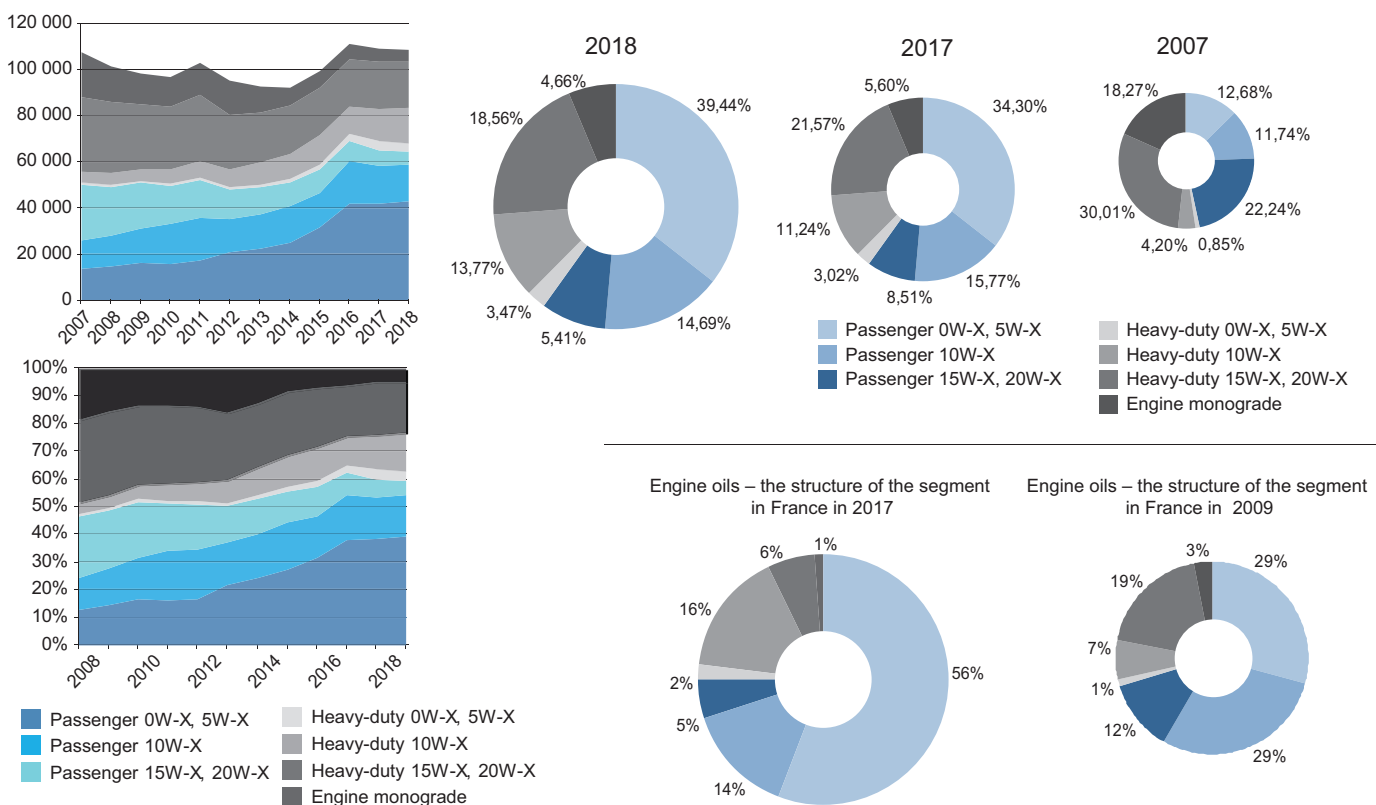
The segment of engine oils for passenger cars in 2018 recorded a marginal decrease of 0.95%. After two consecutive years (2013-2015) of heavy growth and a record-breaking 2016, in which 69,166 tonnes of products were sold, the sales volumes remain on a relatively high level (64,664 tonnes), yet in the past two years increases slowed down and a slight downward trend was observed, which seems to be slowing down 2018. It should be noted that on the one hand automotive industry witnessed a strong 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 enabling longer drain intervals.

Sales volumes of synthetic oils lowest in viscosity grade continued to increase. This group in 2018 for the first time reached a historic record-breaking level of 42,832 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 entails the continuation of a strong upward trend in this segment in the coming years.

FIG. 48 CHANGES IN THE AUTOMOTIVE ENGINE OILS SEGMENT, TONNES (UPPER CHART) AND IN % (LOWER CHART) AND COMPARISON OF STRUCTURES IN POLAND IN 2018, 2017 AND 2007; COMPARED AGAINST THE STRUCTURE OF THE SEGMENT IN FRANCE IN %

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



Heavy-duty engine oils (HDEO)

In 2018 sales volume of heavy-duty engine oils in Poland amounted to 38,880 tonnes, which is a slight increase (by 0,95 % y/y). As well as in the segment of oils for passenger cars, the level of sales volumes did not virtually change in comparison to the previous year's. Despite this fact, one should bear in mind that the above minimal growth in turn translated into another record sales volume, namely in the segment of heavy-duty engine oils.

In this segment the sales have been growing (in terms of tonnage) since 2013, reaching further record thresholds, and only in 2016 there was a temporary decrease. However, given that in the previous year Polish economy grew by 5.1% and the segment of oils for heavy-duty vehicles is one of the most correlated with the dynamics of economic growth, a minimal increase recorded in this segment in 2018 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, this time declined below the level of 52% share. On the other hand, the share of medium-viscosity oils grew from 12% in 2007 to current 38%, while synthetic oils reached a 10% market share within this segment, which means a decrease by 1 percentage point y/y. Simultaneously, the development of the situation on more advanced markets than the Polish one makes us expect more dynamic changes in the structure of this segment. In the case of French market, in 2017 medium-viscosity oils constituted the vast majority (68% share), while mineral oils, which in Poland still account for over 50%, are currently only 1/4 of the French segment of oils for heavy-duty vehicles.

FIG. 49 PASSENGER CARS MOTOR OILS WITH REFERENCE TO VISCOSITY CATEGORIES (EXCLUDING MONOGRADE OILS) TONNES (LEFT CHART) AND IN % (RIGHT CHART) – MARKET VOLUME, EVOLUTION OF STRUCTURE OF THE POLISH AND FRENCH MARKET IN %

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

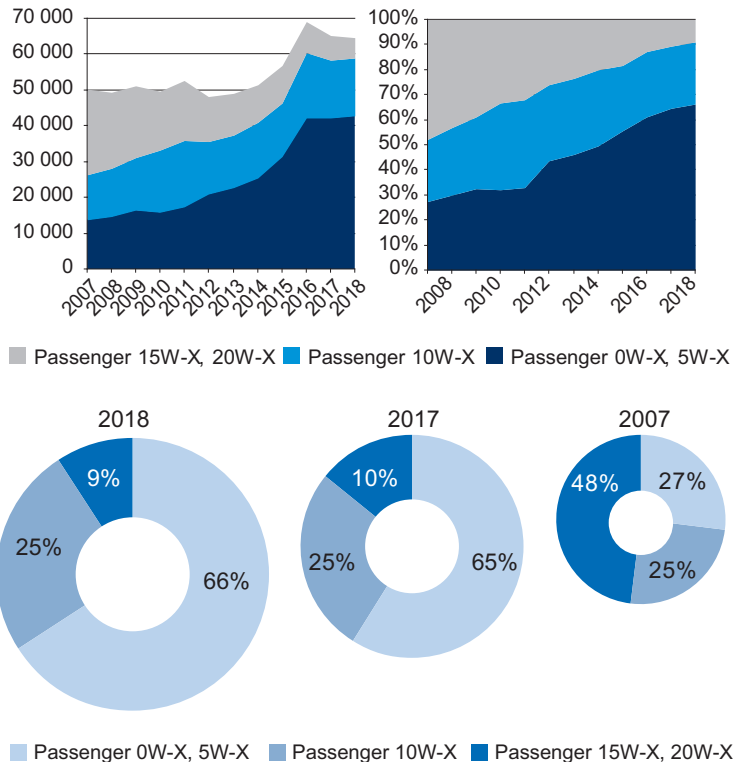


FIG. 50 HEAVY-DUTY ENGINE OILS WITH REFERENCE TO VISCOSITY CATEGORIES (EXCLUDING MONOGRADE OILS) TONNES (LEFT CHART) AND IN % (RIGHT CHART) – MARKET VOLUME, EVOLUTION OF STRUCTURE OF THE POLISH AND FRENCH MARKET IN %

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

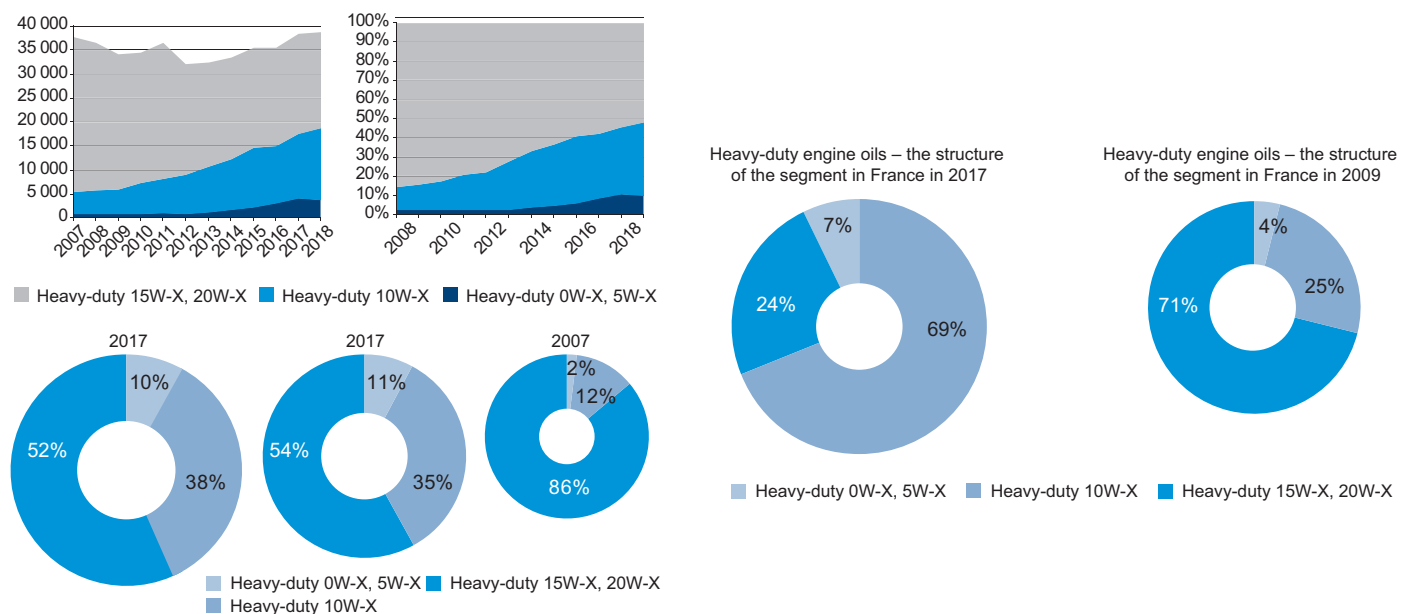
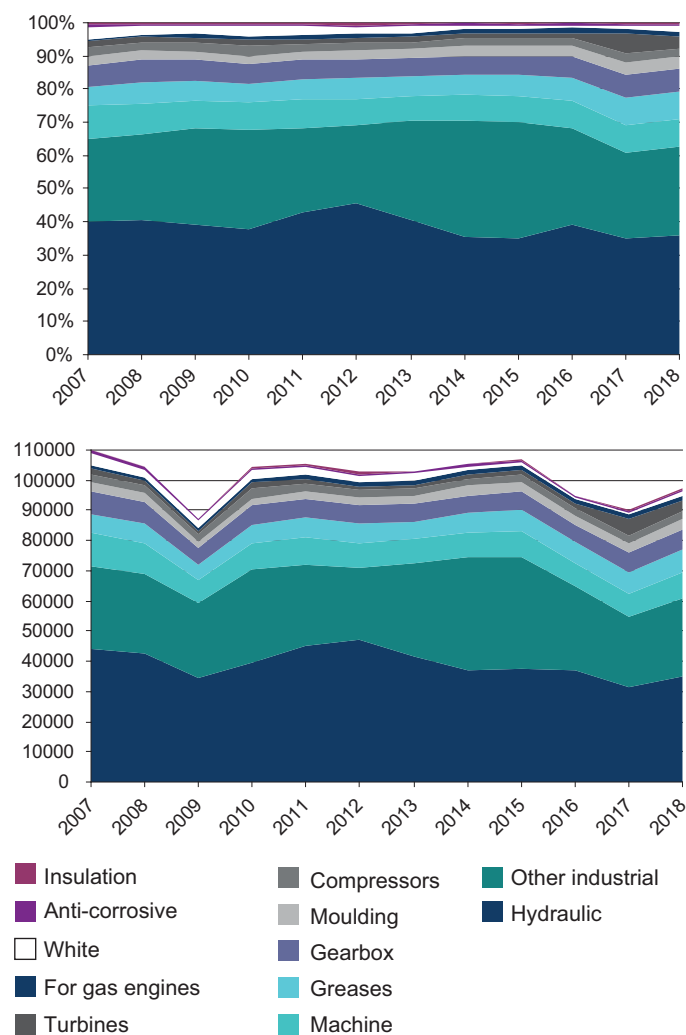


FIG. 51 CHANGES IN THE INDUSTRIAL OILS SEGMENT – EVOLUTION OF STRUCTURE, IN % (UPPER CHART) AND TONNES (LOWER CHART)

Source: POPIHN's own data



Lubricants for industry

In the previous year in Poland the sales volumes of lubricants for industry amounted to 97,332 tonnes, which is an increase by 8.16% compared to 89,986 tonnes sold in 2017. At the same time it should be noted that this increase took place after two consecutive years of significant slumps by, respectively, -5,23% and -11,09%.

Thus, despite a visible growth in the previous year, since 2016 we have been observing a severe economic slowdown in the industrial segment. The sales volumes remain on much lower levels than the ones observed in the most part of the current decade, when they regularly exceeded 102,000 tonnes, and in 2015 even 106,000 tonnes.

In the last quarter of 2018 the values of the PMI industrial index in Poland fell below the levels of 50 points, which might indicate the appearance of recessionary environment, while observations to date justify the conclusion that the behaviour of the index up to now was tightly correlated with the performance of the industrial oils market. Nevertheless, in particular in the years 2016 and 2017, these values in no way indicated the collapse of the market similar to the one observed in 2009, which could account for such a profound and permanent slump in the sales volumes of industrial oils observed in that period. Lack of justification by means of fundamental factors demonstrates the reliability of the thesis of some representatives of the sector on the grey economy developing within lubricant trade in Poland.

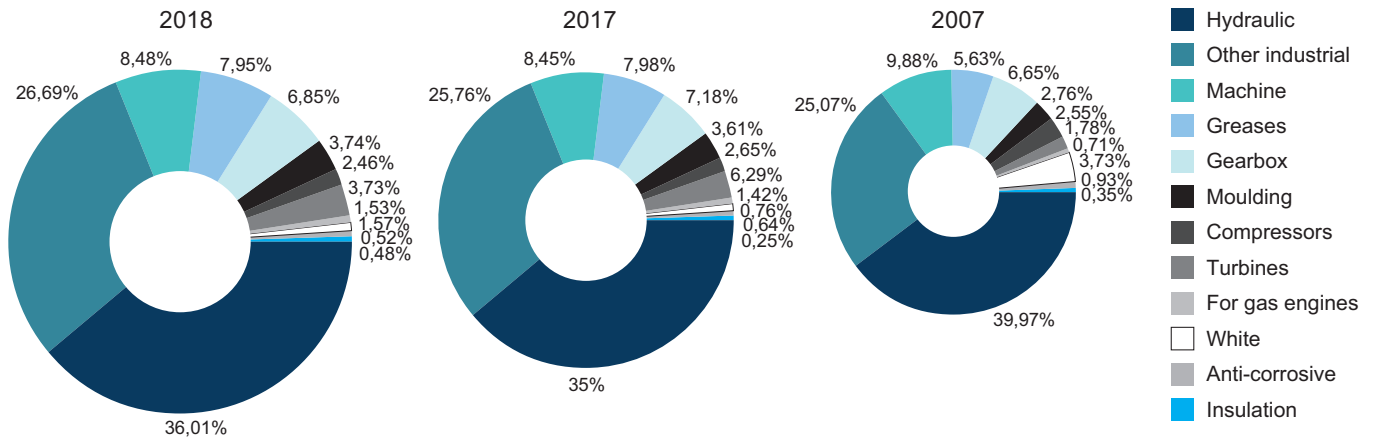
In the last nine to ten years, with regard to the structure of industrial oil sales, there have been no remarkable and steady changes comparable with those which took place in the case of engine oils in the automotive sector.

At the same time currently observed, for the second time over the past 10 years, strong 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 plus minus 3 percentage points, sporadically reaching 5 percentage points.



FIG. 52 INDUSTRIAL LUBRICANTS SEGMENT IN 2018: STRUCTURE WITH REFERENCE TO APPLICATION IN %

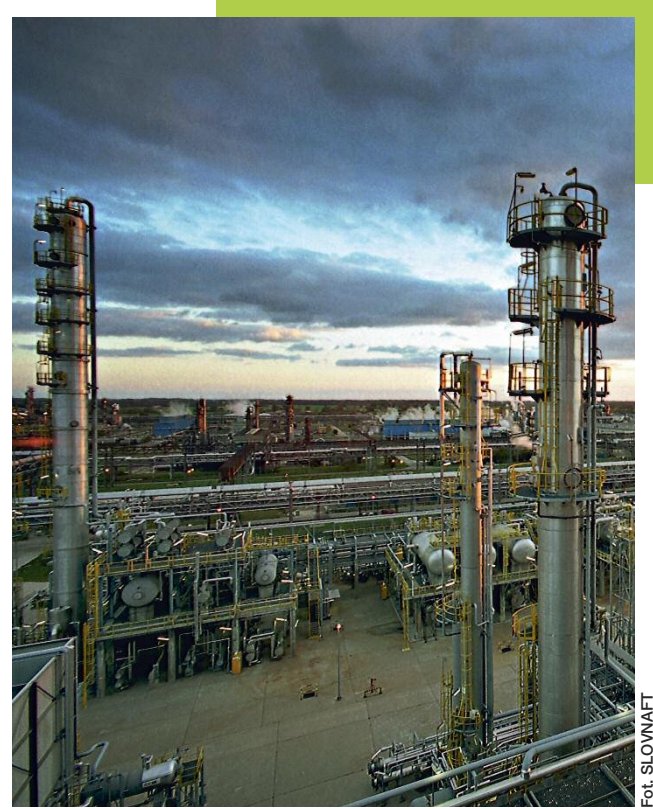
Source: POPIHN's own data



Fot. PERN

The Polish industry still predominantly consumes hydraulic oils (a 36.01% share). At the same time, their share in the overall market share decreased in the last few years, with the biggest decline recorded in 2013-2014, when this group shrank on average by 10%, which, in terms of volume, amounted to a decline of over 9,000 tonnes. In 2018 this share also slightly decreased. On the other hand, in the case of the second biggest group of industrial oils, namely 'other industrial oils', this group's share in 2017 amounted to 25,76%, while in 2018 it increased to 26.69%. Altogether in the previous year sales volumes of products from these two groups equalled, respectively, 35,047 tonnes and 25,975 tonnes.

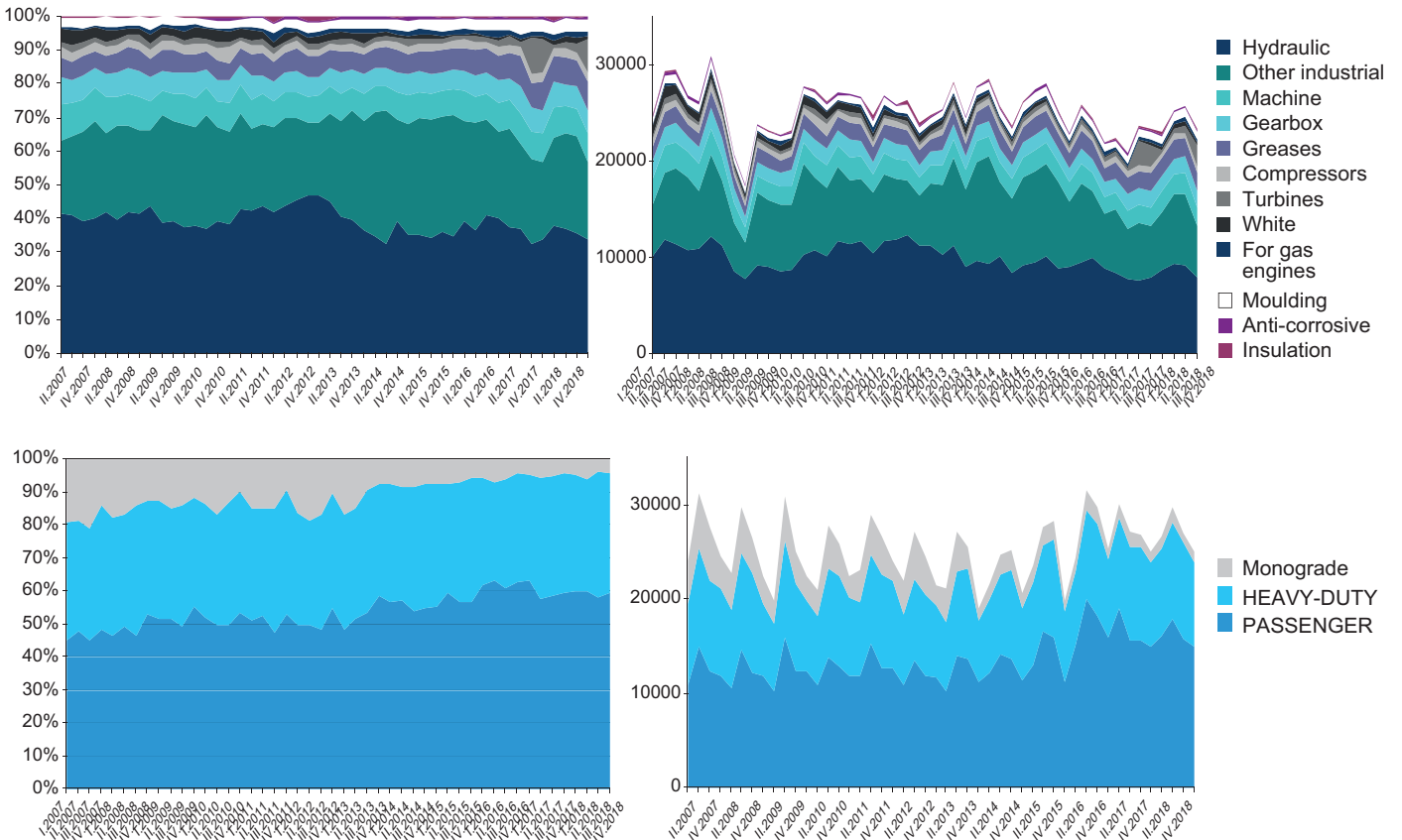
Both main market segments do not reflect any considerable effects of macroeconomic fluctuations upon their structures in a quarterly perspective. However, there are visible seasonal trends in consumption within the automotive segment, caused mainly by typical after-winter service in repair garages, which often includes a periodic change of engine 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.



Fot. SLOWNAFT

FIG. 53 STRUCTURAL CHANGES IN THE INDUSTRIAL AND AUTOMOTIVE OILS SEGMENT – IN TERMS OF QUARTERLY SALES IN % (LEFT CHART) AND TONNES (RIGHT CHART)

Source: POPIHN's own data



EXPLANATION OF TERMS

LUBRICATING OILS MARKET OVERALL Starting with the report for 2015, overall market of lubricating oils is divided into only 2 segments: automotive and industrial. Unlike in previous reports, the abovementioned 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 a significant growth of this group in recent years, its impact on the picture of the entire market would be too noticeable.

PASSENGER CAR MOTOR OILS (PCMO) – these are engine oils for passenger cars, motorcycles, and 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 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 a basic constituent) is greater than or equal to 70%. In the automotive segment, most of such oils are used in the production of older type oils characterised by higher viscosities (mainly 15W and 20W oil groups). These products are obtained mainly 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 basic 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:

– 6 winter classes marked with a number and the letter W: 0W, 5W, 10W, 15W, 20W, 25W;

– 5 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.

MONOGRADE OILS – these are older-type oils intended for use in certain, 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 information available at 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 decreased from 7 to 6 due to Fuchs taking over Statoil (currently Circle K). However, since 2018 Slovnaft has started reporting its data again, so the number of reporting entities has grown to seven. All abovementioned 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 reported market data have been fully continuous and adequate.

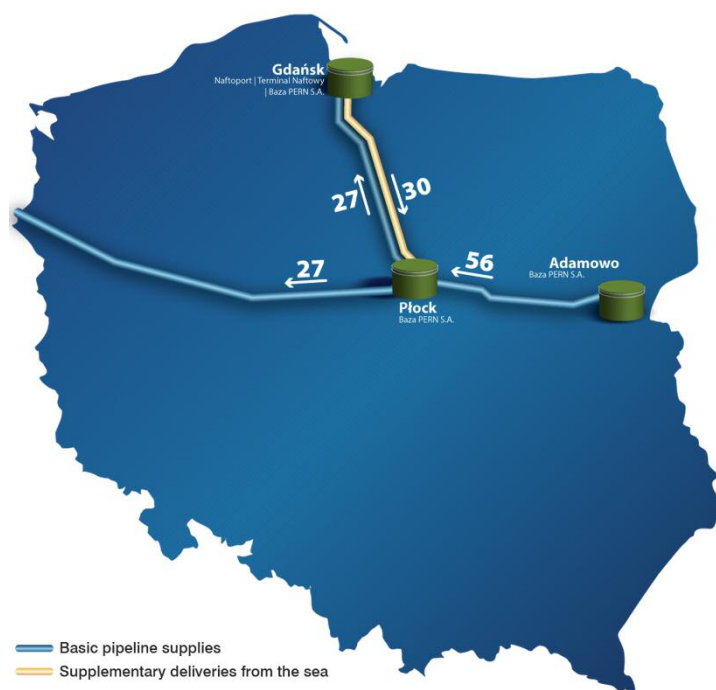
Starting from 2012, market data obtained from monitoring activities have been adjusted upwards, as a statistical correction, by 25% (for the automotive segment) and by 15% (for the industrial and other oils segment) to take into account the rest of the market which is outside the companies covered by monitoring. The Organisation's view is that this estimate reflects the current market share of companies which are not affiliated to POPIHN.

It should be noted that for the period 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 2018, as it is aggregated after over three months. For this reason, the data for the fourth quarter presented in this report were based on 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

On 3 January 2018 the company PERN S.A. expanded the scope of its activities, merging with OLPP Sp. z o.o. The integration of these Companies aimed at increasing the country's energy security within crude oil and fuel market. The above integration led to establishing one big, efficiently operating entity dealing with logistics of crude oil and fuels. After the merger, PERN's services focus on the following groups:

9. **crude oil:** transport and storage

10. **fuels:** storage, handling, storing, creating and maintaining mandatory oil stocks in the form of stock 'ticket' reserves

11. **other:** telecommunication services.

Crude oil sector

The PERN S.A. offers transport services of crude oil by means of 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 SA, Grupa Lotos SA, German refineries [PCK, TRM] and trading companies. The maximum capacity of this section is 56 m. tonnes/year, which was reached after finishing the construction of the III conduit of the pipeline.

The Western Section connects the Miszewko Strzałkowskie Depot to a German operator MVL depot and

it transports crude oil to German refineries: [TRM and PCK GmbH refineries], both from land and sea shipments. Additionally, this pipeline transports crude oil to/from Underground Oil and Fuel Storage Facility 'Góra', and also sends Polish crude oil from Polish fields LMG (Wierzbno) and BMB (Dębno), owned by PGNiG, to German refineries. The 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 Handling Depot in Gdańsk; Russian crude flows along this route to a Gdańsk refinery, which belongs to Grupa LOTOS SA and for export via NAFTOPORT to trading companies in quantities reaching 27 million tonnes of crude oil per year. The Pomeranian Section is reversible, allowing also pumping crude in the reverse direction from Gdańsk to Płock, including crude oil other than REBCO, to PKN Orlen and, if it is necessary, to German refineries. The Pomeranian Section towards the direction of Płock has the capacity of up to 30 million tonnes of crude oil per year.

PERN S.A. owns four crude oil storage depots, of total capacity of approximately 3.5 m. m³, located at Adamowo, Płock and Gdańsk [Storage Depot and Oil Terminal in Gdańsk].

The Company utilises its capacities to provide a crude oil storage service and at the same time they fulfil an important role, acting as stabilisers in the flow of crude oil. Given the above fact, only a part of storage capacities can be permanently assigned to commercial storage services. PERN S.A. has storage capacities with nominal capacity of up to 100.000 m³.

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

- storing mandatory stocks – a service provided for entities who have a statutory obligation to store mandatory stocks
- storing operational stocks – a service provided for refineries for crude oil aimed at 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 Material Reserves Agency).

As a result of the introduction of the Fuel Package and increased supplies by sea routes, PERN's storage capacities are fully utilised, mostly by Polish entities, and PERN has launched a series of investments to expand its storage capacities by approximately 590,000 m³. The new capacities being built in Gdańsk are to be entered into operation in 2020.

Liquid fuels storage logistics

PERN S.A., being a leader in fuel logistics sector in Poland, has very modern infrastructure which meets all legal requirements for fuel depots, including the ones related to the environment, and, most importantly, is satisfying the growing requirements of our clients. The Company owns a network of fuel depots, the total capacity of which is over 1.9 m. m³. PERN stores petrol, diesel, light fuel oil, biofuels and aviation fuel intended for supplying the current market as well as maintaining the intervention fuel stocks. Storage tanks at the Company's disposal can store up to 32,000 m³.

The five largest depots, namely the ones in: Koluszki, Nowa Wieś Wielka, Boronów, Rejowiec, and Emilianów are connected by long-distance fuel pipelines with the refinery in Płock. 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.

Besides, the Company owns accredited petroleum product laboratories, which, apart from comprehensive supervision of the quality of fuel held and stored in PERN's depots, also provide services to third parties. PERN'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 is constantly looking for new solutions in order to meet customers' expectations. With a view to maintaining customer trust and market confidence, the Company has implemented, maintains and improves the Integrated Management System, compliant with the standards PN-EN ISO 9001, PN-EN ISO 14001:2005 and PN-N 18001:2004.

Capacity utilisation

PERN has about a 50% share of liquid fuels storage market. Apart from providing services to fuel market operators, the Company plays an important role in the country's energy security. PERN's tanks hold intervention stocks, including the ones for the state's Material Reserves Agency. 2017 was another year of increases in fuel consumption, which directly translated into the volume of

intervention stock stored in 2018, thus increasing PERN's capacity utilisation practically to the limit values.

The legislative changes implemented in 2016 – 2018 (the so-called Fuel Package, Energy Package and Transport Package) influenced the spike in fuel trade, which was also visible in 2018. The previous year resulted in an even greater need for storage capacity, also in PERN.

In view of the above, PERN has launched extensive investment programme which comprises constructing new storage capacities. In the first, almost completed stage it is about 120,000 m³ of capacities). In the coming years the Company is planning to build several hundred thousand m³.

Loading from PERN's Fuel Depots

In 2018 the total volume of loadings in PERN's Fuel Depots equalled over 14 m. m³, thus being another year of intensified utilisation of the PERN infrastructure, whereas the loadings were record-breaking in the Company's history.

In 2016 – 2018 a number of provisions were introduced, aiming at tightening the so-called 'grey' market in fuel trade. Since the entry into force of new regulations PERN has noted a substantial growth in fuel trade, and each subsequent year brings significantly more loadings from depots. Overall in 2018 the increase in loadings to road tankers amounted to around 8 per cent when compared to also high volumes loaded from depots in 2017.

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





Blending with biofuels

The biofuels blending service has a key role for business operators and 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 creates conditions that allow to achieve the NBT by offering the service of blending esters with diesel, as well as bioethanol with petrol.

From the start of 2017, entered into force the provisions of the amended act Energy Law, which introduce the obligation to achieve the National Biofuels Target through biofuels contained in liquid fuels (the so-called obligatory blending). PERN, in order to respond to market needs and adjusting to the new regulations, expanded the possibility of adding biofuels to diesel by launching a dosing installation in Dębogórze and Narewka Fuel Depots. In 2019 the Company is planning to expand the possibility of adding biofuels to diesel by launching installations in other Fuel Depots owned by PERN: at Wola Rzędzińska, Skarżysko Kościelne, Strzemieszyce and Kawice.

Stock ticket reserves

Stock ticket reserves service consists of 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 2018 the volume offered by PERN remained at a high level.



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