



**SPIUG**

Stowarzyszenie Producentów  
i Importerów Urządzeń Grzewczych

**Report:**

# **Heating device market in Poland in 2019**

Association of Heating Device  
Manufacturers and Importers

Warsaw, April 2020

# Table of Contents

1	Introduction .....	2
2	General market situation in 2019.....	3
2.1	General economic situation in Poland in 2019 and factors which influenced the growth of the installation and heating market .....	4
2.2	Residential construction .....	6
3	Market growth in selected product groups in Poland in 2019	12
3.1	Suspended gas boilers.....	17
3.1.1	Conventional suspended gas boilers .....	18
3.1.2	Suspended condensing gas boilers .....	20
3.2	Floor standing boilers (gas and oil) .....	21
3.2.1	Floor standing gas boilers .....	22
3.2.2	High-power floor standing gas boilers (over 50 kW) .....	25
3.2.3	Floor standing oil boilers .....	27
3.3	Solid fuel boilers .....	31
3.4	Heat pumps.....	35
3.5	Electric heating.....	37
3.6	Solar collectors.....	40
3.7	Radiators and other installation elements .....	43
4	Summary of the forecast for development of the installation and heating market in the future .....	46

# 1 Introduction

This report is another annual trade report concerning the development of the heating device market.

The Association of Heating Device Manufacturers and Importers is a trade organization which gathers manufacturers of a broad range of heating devices, such as gas boilers, oil boilers, solid fuel boilers, electric boilers, solar collectors or heat pumps, and since 2018, also a group of manufacturer of heating system components, such as surface heating and radiators. Moreover, SPIUG cooperates with manufacturers that develop innovative heat sources, yet are not formal members of the organization. Members of SPIUG include such brands as: ACV, Ariston, Baxi, Beretta, Buderus, DeDietrich, Ferroli, Fondital, Galmet, Hewalex, Junkers, Bosch, Immergas, Kospel, Sanier Duval, Sofath, Stiebel Eltron, Termet, Thermagen, Unical, Vaillant, Viega, Viessmann, Weishaupt, Wolf, and since 2018 also Purmo Rettig, Uponor, Herz, Comap, Tece and Aberon and Perfexim. The market of individual heating devices in Poland is one of the more significant ones in Europe, and, after dynamic development in 2017, 2018 and 2019, still has a significant development capacity. On account of the existing infrastructure and great government support for system heat, a high percentage of new buildings in urban areas, particularly multi-family buildings, is connected to heating networks, or can be connected due to the existing, nearby infrastructure. This type of heat supply is also eligible for government and local support, as the network heat is included in the PEP2040 (Polish Power Policy till 2040). Currently, a project of heat engineering development strategy in Poland is being prepared. Transformation of heating networks into systems which meet the REDII requirements is a significant challenge for the companies operating in this segment. All that influences the situation in the installation and heating market in Poland, and its growth.

Due to the specificity of the market of individual heating devices, as well as the SPIUG area of operations, this report contains information about the development of the lower-power heating devices market, mostly under 50kW, but also takes into account slightly higher capacities up to 200 kW heating devices, included in the statistics as part of the study. This report is based on PIUG's own analyses in the scope of the heating devices, and in the section concerning the surroundings of the installation and heating market is based on analyses available at the GUS and information collected directly from the market, from fitters, manufacturers and distributors. Just like in the previous edition, lack of reliable estimates concerning the market size and development of certain product groups which constitute heating devices, prevents this report from presenting the market situation in these groups, or allows to show a general analysis only.

## 2 General market situation in 2019

The year 2019 saw continuation of the market and economic events from 2018, which had a positive impact on the development of the installation and heating market. The economic situation favourable for investments intended to improve the air quality at the local level and the mood in the industry were a reflection of the sales increase, which started in the industry in the 2<sup>nd</sup> quarter of 2017, when significant sales increases were recorded in most product groups in the industry. Growth in consumption, as well as the ability to use EU funds coming from the Regional Operational Programmes, certainly influenced the situation in the installation and heating industry in 2019.

In 2019, total sales increases were no longer as drastic as in the preceding year, but the positive trend in most product groups prevailed, or even further significant growth was observable. According to the opinions collected in the market, the result could be even better if not for the noticeable employment problems – shortage of specialists in workmanship and increases in the prices of certain building materials. Moreover, some of the companies active in the fitting and heating industry, with production plants in Poland, signalled the problem of workforce shortage, which restricted the possibility of increasing production of devices and systems. In 2019, the market of replacing old heating devices with new ones was dominant. It is the result of local programmes intended to prevent low emissions – active since 2017 – so-called umbrella programmes based on the Regional Operating Programmes performed mostly at the commune level, based on EU funds. Also, the government priority programme „Clean Air”, implemented in September 2018, intended to reduce low emissions, started incentivizing the investors to modernize their heating systems. Unfortunately, since the very beginning the functioning of this flagship support programme of NFOSIGW was far from the expectations of the potential beneficiaries, which caused a relatively small number of investigated applications, compared to the plans and expectations. Since September 2019, works intended to improve the functioning and amend the rules of the priority programme “Clean Air” have been in progress, in the scope of changes aimed at the most effective use of the support funds in order to achieve the final effect of reducing low emission and improving the air quality in Poland. The media upheaval concerning the need for reducing low emissions has also noticeably increased the social awareness of the hazards it causes, which is of course a good thing, yet there is still much to do in this respect.

## 2.1 General economic situation in Poland in 2019 and factors which influenced the growth of the installation and heating market

In January 2020, GUS published statistical data concerning the economic situation in Poland in 2019. According to their estimates, in 2019 the general economic performance in the country was still good, although the inflation, which started growing near the end of 2019, caused some concern. According to the data provided by GUS, the industrial production dynamics in 2019 was 4 % higher than in 2018. A year before, this growth was 5.8%, compared to 2017. In the case of construction, a 2.6% growth was recorded in 2019, compared to 17.9% in the preceding year. In construction, the highest growth of 2.9% was recorded in the specialist works group, which also includes the installation and heating works.

	I-XII 2018	I-XII 2019
<b>CONSTRUCTION</b>	<b>+17,9%</b>	<b>+2,6%</b>
Building construction	n/a	+2,4%
Land and water engineering construction	n/a	+2,6%
Specialist construction works, including installation and heating works	n/a	+2,9%

Table 1. Trends in building production 2019

Companies which construct buildings also recorded a growth by 2.4%, while those operating primarily in the land and water engineering – by 2.6%. Between January and December 2019, the value of investment works compared to the same period of 2018 was 3.0% compared to 15.8% growth in this statistical group in 2018, whereas for renovation works 2.1% compared to 21.4% growth in this group back in 2018.

According to the GUS data, the prices of construction and renovation production in December 2019 were 2.9 % higher than in December 2018, In December 2019, building construction prices increased by 3.4% and specialist construction works, which also include the installation and heating works, increased by 2.3 % compared to December 2017.

The numbers provided by GUS may raise doubts, seeing as a number of building materials increased in prices in 2019 by several or more than ten per cent, although the price change dynamics was lower than a year before. The costs of employment also significantly grew further, but one may assume this happened at the expense of the margins acquired by construction companies. That would explain the growing issues with financial liquidity in this industry. This situation is worth investigating. At the end of 2019, the financial situation in the construction industry was not visibly different than in the preceding quarters of 2019. Yet,



throughout the year, there was a visible increase in the number of construction companies gone bankrupt. The tendency for deterioration of payment morality and delays in invoice payments continued. Economic slowdown is more and more often visible, which at the end of 2019 started affecting the financial liquidity of companies. In 2019, the total number of bankruptcies and company reorganizations in Poland increased by 4.5%.

According to data published by COFACE, compared to other industries, the construction industry still looks rather good, as in 2019 the number of bankruptcies decreased by 13%, whereas in the preceding year it increased by 4 %. The share of construction companies' bankruptcies in the total balance of bankruptcies is still high, reaching almost 12% compared to 14.4 % in the preceding year. This result shows a moderate improvement of the construction sector situation in 2019. Many companies operating in construction recorded an improvement in profitability, caused, e.g. by a drop in the building material price and labour cost increase rate, as well as renegotiation or withdrawal from contracts signed earlier, on unfavourable conditions. One should note that since the 2nd quarter of 2019, the economy indexes in the construction trade have deteriorated. This was visible by a reduction in the number of implemented investment projects, particularly those financed by the local administration. The situation was rectified by the demand for residential and commercial building, high until the end of 2019.

Additional challenges for the construction companies come from the need for using the introduced mechanism of split payment, which may negatively affect the financial liquidity of smaller entities.

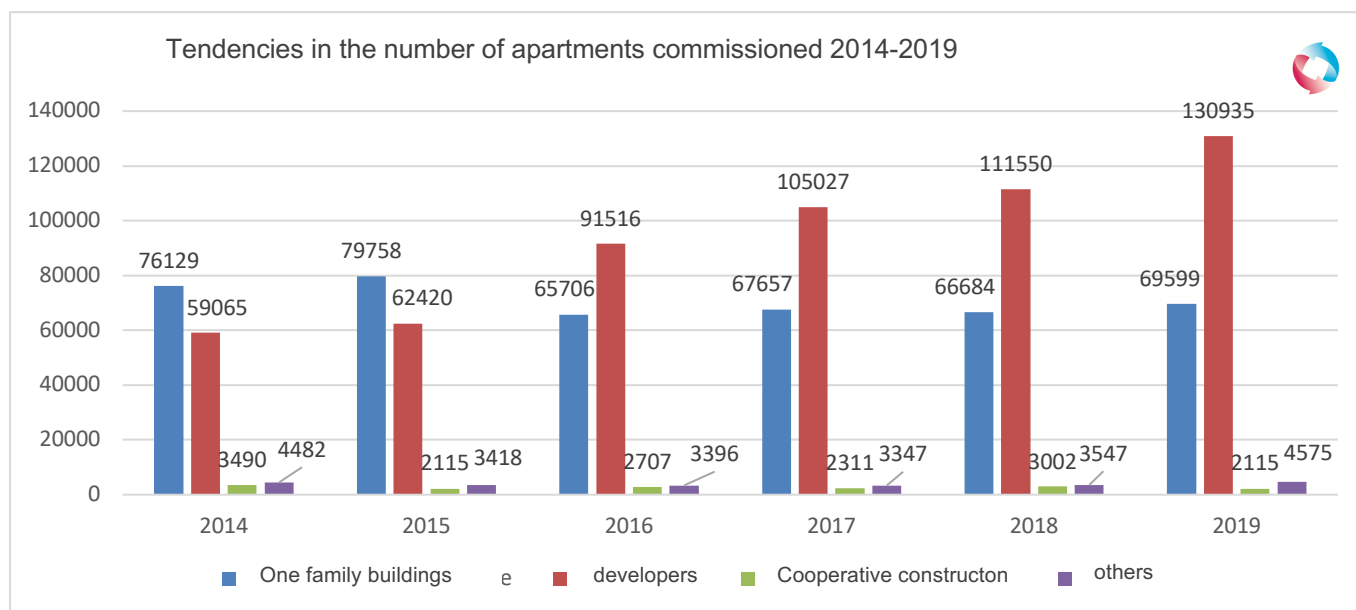
On one hand, the construction industry receives a lot orders, on the other, with the continued growth of residential construction, although the growth dynamics in this sector also dropped noticeably. Yet, at the same time, there was a dynamic increase in the costs of labour, services and construction materials. This situation, along with the increasingly visible economic slowdown, increases the risk of losing financial liquidity for companies operating in the construction industry, including those in the installation and heating industry. Another issue is the increase in problems with profitability of these companies. Fortunately, so far there has been no drastic increase in insolvency in the construction industry, although this problem started to exist more and more visibly at the end of 2019. By the end of the year, the situation was quite stable, but mainly for larger entities. Among smaller companies, which act as subcontractor for those larger ones, including fitting companies, liquidity problems are quite common.

## 2.2 Residential construction



Fig. 1 Number of apartments commissioned in 2014-2019 (Source: GUS)

The tendency of the investors' share in the investments was also continued. In 2019, developers retained their dominating position, by building almost 130.9 thousand apartments, which is 63.1% of all the apartments commissioned in 2019, and was a 16.6 % increase compared to 2018. Individual investors built about 69.6 thousand apartments, which means a 5.1 % increase compared to 2018, which gave them a bit over 33.6 % in this statistical category, which means about 3% drop in share. In 2019, less apartments were commissioned in cooperative construction, where their number came to 2115 compared to 3024 in 2018, which means a decrease of about 30%. In other construction forms (tenements, municipal and company), a total of 4575 apartments were commissioned, i.e. over 30.6 % more than in 2018. These results also have an impact on the structure of installed heat sources.



**Fig. 2 Tendencies in the number of apartments commissioned in 2014-2019, by groups of investors (Source: GUS)**

The structure of the commissioned apartments affects the structure of the installed heat sources. Developers who build mostly in urban areas often make use of the possibilities of connecting their buildings to the municipal heating network, which reduces the costs of the installations by the heat sources replaced by the heat distribution centres, of course if the infrastructure is available locally, which seems understandable and logical from the perspective of the developer business. Nonetheless, there are doubts regarding forcing this type of connections through, if the infrastructure is still only at the planning stage, for near or more distant future, which occurred in the amendment to the environmental protection act in September 2019. By the end of 2019, there were individual cases of discriminating individual heating devices in favour of heating networks, with simultaneous problems regarding connection to the central heating network, caused by lack of new infrastructure and problems with financing investments of this sort.

In the past, there were numerous problems with connecting new buildings to heating networks, caused by time-consuming procedures and the time necessary to complete such an investment. In these cases, one could resort to solutions based on dispersed heat sources, which unfortunately involved a struggle with the bureaucratic procedure related to making the necessary changes to the heat source system design.



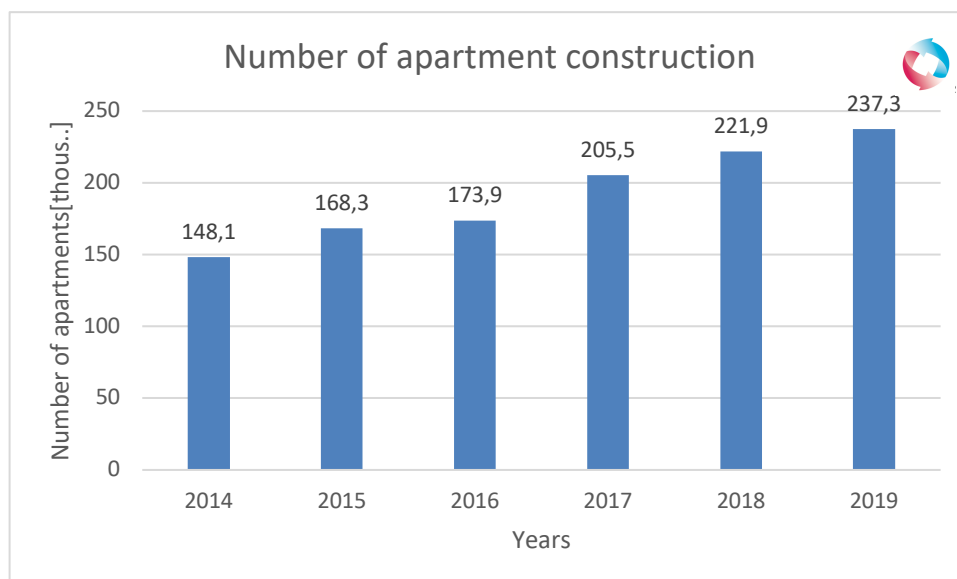


Fig. 3 Number of apartment constructions commenced in 2014-2019 (Source: GUS)

Between January and December 2019, construction of 237.3 thousand apartments was commenced, which means a 6.9% increase compared to 2018, but at the same time means a minor drop in the dynamics compared to the preceding year, when this increase came to 7.7%.

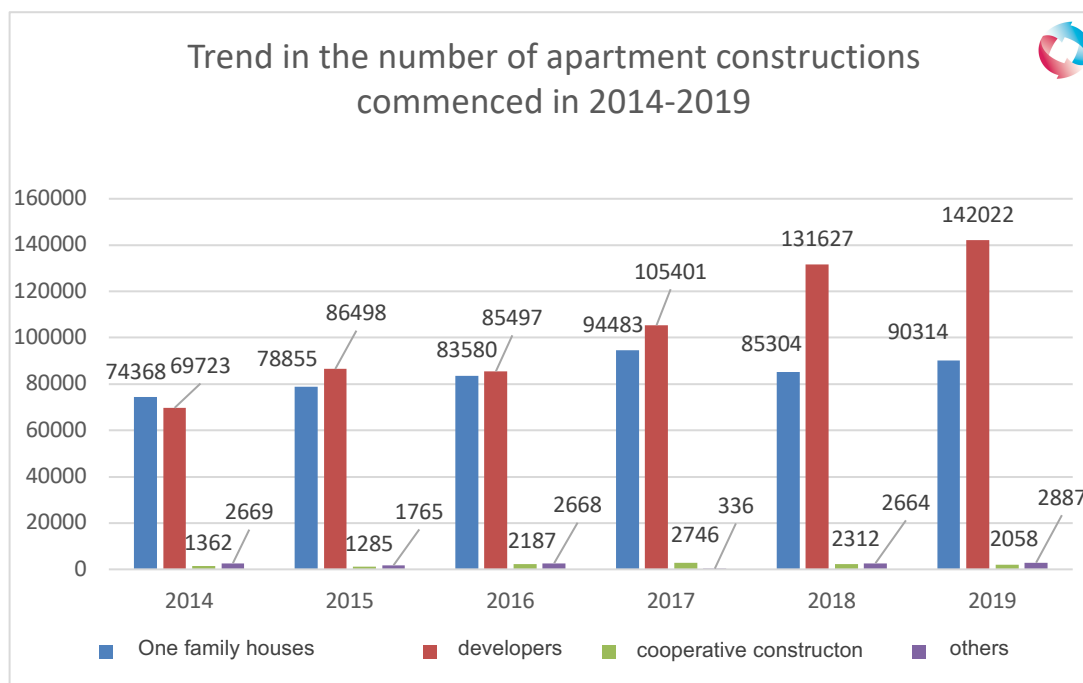


Fig. 4 Trend in the number of apartment constructions commenced in 2014-2019, by investor groups (Source: GUS)

In terms of investor groups, the developers commenced construction of 140 thousand apartments, giving them a 59 % share in the total number of apartment constructions started in 2019, compared to a 59.3% share at the end of 2018. In 2019, individual investors commenced construction of 90.3 thousand apartment, giving this group a 38.1 % share in the total number of new constructions, compared to a 38.4% share in 2018. This means certain stabilization in the market division. This information is important, as most single-family buildings have individual heating devices. Less apartments the construction of which commenced in 2019 than in 2018 was recorded in cooperative construction, where construction of 2,058 was commenced, compared to 2,312 apartments in 2018, which means an 11% drop. In other forms of construction (tenement, council), there was an increase of 8.7% (construction of 2887 apartments was started in 2019 compared to 2,664 apartments in 2018).

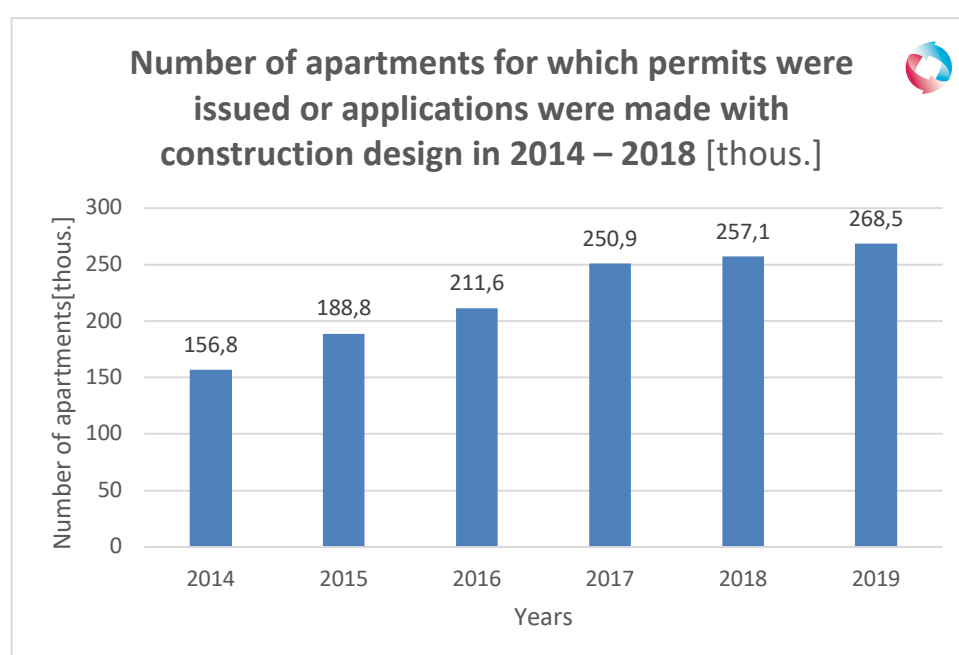


Fig. 5 Number of apartments for which permits were issued or applications were made with construction design in 2014 – 2018 (Source: GUS)

In 2019, permits were issued or applications with a construction design were submitted for construction of 268.5 thousand apartments, i.e. 4.4 % more than in 2018.

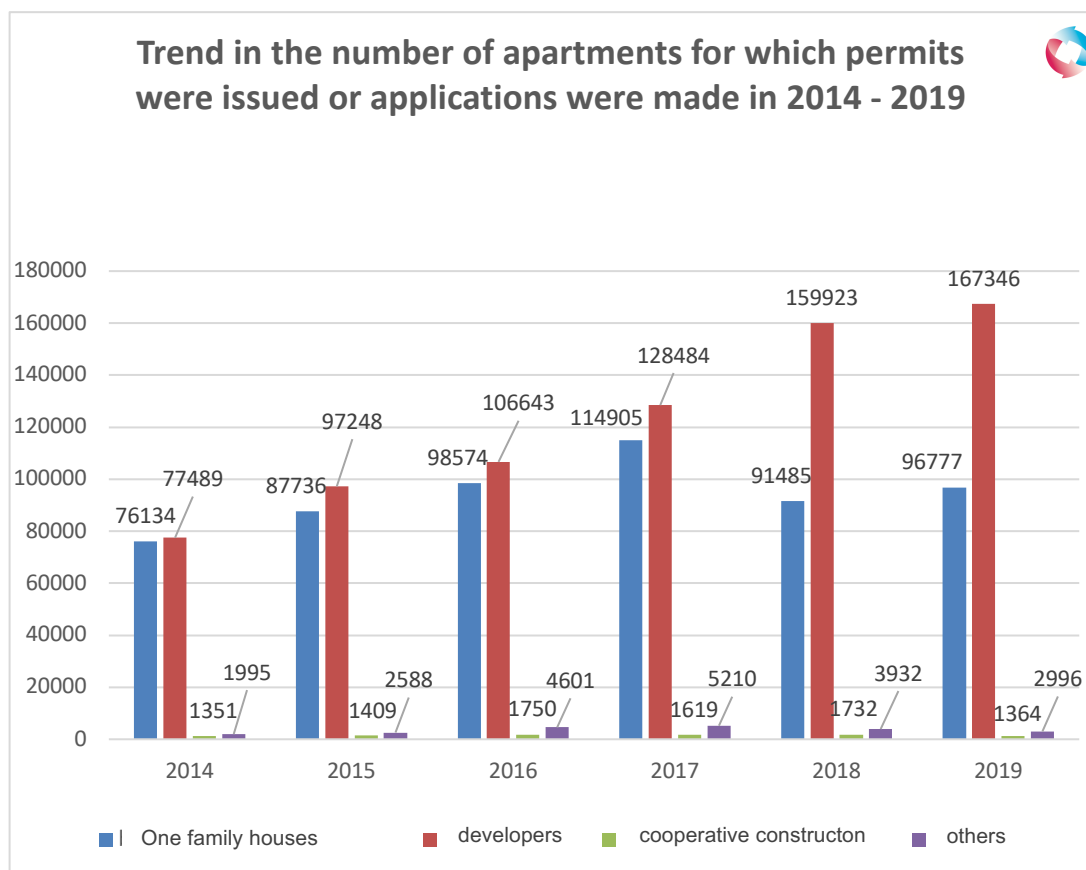


Fig. 6 Trend in the number of apartments for which permits were issued or applications were made in 2014 - 2019, by investor groups (Source: GUS)

Still, in 2019, the largest group of investors in this category of issued permits for apartment construction was the developers, who obtained permits for construction of over thousand 167.3 apartments, and individual investors, who obtained permits for construction of almost 98.6 thousand apartments. This means increases in the numbers of obtained construction permits in these investor groups by 4.6% and 5.8%, respectively, compared to 2018. In total, within these construction forms, permissions were obtained sites were reported with construction design for 98.4% of all the apartments (of which 62.3 % for developers and 36.7 % for individual investors). In 2019 in co-operative construction there were 21.2 % fewer apartments for the construction of which permits were issued or reports were made with construction design than in 2018, that is 1364 apartments in 2019 compared to 1732 apartments in 2018. Also, in tenement, social and council construction, there was a 23.8 % drop in the number of apartments for which permits were issued or applications were submitted with construction design, that is 2996 apartments in 2019 compared to 3932 apartments in 2018.

The results and the tendencies related to the number of commissioned apartments, apartments under construction and the number of issued construction permits and applications in this scope allow us to analyse the growth potential of the installation and heating market in

the years to come, in the so-called first installation segment. It can be assumed that the developers' building cycle takes 18-24 months, whereas in the case of single-family construction, it usually takes about 2-3 years, sometimes longer. This means that the investments started now will be fitted with heating devices at the final stages of construction, during finishing works, i.e. in 2-3 years. Of course, the installation fittings are installed earlier, whereas the heating devices themselves only at the end of the investment process as part of fitting works, when, e.g., it is necessary to heat the rooms during interior finishing works. Also, there is a certain delay between the moment of receiving the building permit and finding the contractor, who actually commences the construction works. This also gives a measurable potential of demand for heating devices in a longer-term perspective. Hence, it is also worth examining the data concerning building movement in various groups of investors, as their rate of performance also shifts the demand for heating devices into the future intended for new construction. In the case of commissioned buildings, they are complete and constitute a basis for analysing the actual and historic data. It is unknown whether this positive trend will prevail also in 2020. In March, the COVID-19 pandemics caused a significant outflow of foreign workers, mostly from Ukraine, who were a significant group of workers carrying out residential construction in Poland. Admittedly, the results of the 1st quarter of 2020 were still quite good, but the epidemics seriously started only in March. If we add this to the safety-related restrictions, infection prevention, potential problems with deliveries of components from abroad, or labour shortages on construction sites and in plants manufacturing building materials, the result of the residential construction in 2020 is a great unknown.

Additionally, the recent drop in the growth dynamics in the residential construction may certainly affect the future situation in the installation and heating industry, if, following the budget cuts related to fighting the COVID-19, the authorities fail to consistently implement the programmes intended to reduce low emissions. The decreasing share and drops in the individual construction group also mean a decrease in the installation potential for individual heat sources in new buildings, which may be escalated by the expansion of network heat, supported by the governmental and local administration authorities. So far, having an alternative for new construction in the form of increasingly significant supplementing of heating device sales potential in the form of device replacement, the installation and heating industry did not feel in 2019 in a special way the growth decreasing trend in newly-built residential buildings.

## 3 Market growth in selected product groups in Poland in 2019

The year 2019 saw continuation of the market and economic events from 2018, which had a positive impact on the development of the installation and heating market. The economic situation favourable for investments intended to improve the air quality at the local level and the mood in the industry translated into sales increases, which occurred for most product groups in 2019.

In 2019, the installation and heating market was growing nationwide, yet, in certain provinces, slight decreases occurred. Large sales increases for heating devices were recorded mostly thanks to programmes subsidizing replacement of unclassified solid fuel boilers. Although in most product groups in 2019 there were no such spectacular rises as in the preceding years, there were also no significant drops, apart from solid fuel boilers stoked with coal and its derivatives. The final customer's demand for heating devices can be divided into two types: resulting from actual living needs, mostly in smaller towns, and investment, which is a significant part of purchases in large cities. The factor that drove this trend was a relatively low cost of money (which, with growing inflation, causes a loss on investing capital in financial instruments, which is why the citizens kept investing in real estate, as the interest on bank savings are often very low). The dispersed market (single-family construction/renovations) in 2019 was restricted by the potential of available construction and installation services. There was still a noticeable increase in the prices of services and major problems with availability of qualified staff in construction and installation in companies, which was partially offset by recruiting workers from Ukraine and Belarus. In the entire 2019, the installers had their schedules full with work orders, both on new buildings and for renovations and modernizations. The labour prices rose fast, along with the increase in tax and social insurance charges, as well as staff shortages in the contractors' market.

In 2019, the economic situation in the construction industry deteriorated somewhat, particularly in the market of large developers. The growth dynamics for new constructions and issued building permits, as well as reports on commencing construction, decreased too. The financial situation of the companies, particularly installers, was relatively good, although the split-payment mechanism caused much problems for the customers. The new VAT act – the situation with the split-payment is very disorienting, particularly for smaller installation companies, which lack the knowledge on proper issuing and payment of invoices. Private investors became very vulnerable to subsidy programmes, which often caused investments to be stopped in anticipation of the new financial support programme. In 2019, the market had increasingly higher expectations of the Clean Air programme, the effects of which, according to the potential beneficiaries, after a year of functioning, are far below the expectations. Staff changes in the board of NFOŚiGW raised hopes for and improvement and better functioning of this programme. The support programmes often made the investors choose new modernization

systems, as well as incentivized purchase and installation of better and more expensive devices. Just like in the preceding year, the end customers purchased devices based on the servicing efficiency and potential operating costs. This preserved the tendency for a greater interest in slightly more expensive, but more modern heating devices.

The information campaigns intended to reduce low emissions increased the interest in modern heating technologies, including RES, particularly heat pumps, where a large promotional campaign noticeably encourages the use of this device at every level, both in Poland and in other UE countries. A strong lobbying to use this technology translated into two-digit increases in the heat pump sales.

There was still a noticeable economic growth, and the rising consumption across the country boosted the development of the installation and heating market as an element of new investments and renovation works. Sales of devices without installation is currently becoming impossible, due to online sales, due to offers at very low prices which in fact after making the purchase decision, not always matches reality. There was also a noticeable increase in the customers' awareness when buying heating devices. So far in 2019, there have been no perceptible problems created by the amendment of the Environmental Protection Law, which highly favours network heat in new buildings. It was probably because of the lack of connection capabilities and a high share of the replacement market in the sales that the negative results are still not visible to the same degree as they were in the past, when a similar regulation with a more limited scope was introduced, nonetheless near the end of 2019 there were first signals of the designers' trouble to timely obtain the local network operator's declaration regarding the possibility of connecting a building. In general, it can be concluded that in 2019 the installation and heating market still had a growing tendency, although this growth was far less dynamic than in the preceding year.

In the installation and heating industry, the year 2019 went, with certain exceptions, positively regarding sales in practically most of the product groups of heating devices and fitting components. There was also a noticeable continuation of a growing tendency in certain product groups, with stabilization or minor drops in others. The increases concerned mostly modern heating devices, meeting the requirements of eco-design and low emissions. In the case of suspended gas boilers, the growth in 2019 reached about 8%. It can be said that the market of gas heating boilers stabilized with moderate growth, also after a spectacular reduction of the market potential for conventional gas boilers, which indicates that the replacement market for these boilers reached a certain new, lower level, and the investors prefer to invest in changing the entire combustion installation and replacing an old gas boiler with a condensing boiler where possible, instead of sticking to the old heating technology, based on a conventional gas boiler. Before making decisions, the customers compare the components, technical parameter and the functionalities offered by the devices. This makes the condensing boiler market grow very dynamically. There was also a noticeable, consistently higher interest in heat pumps, particularly air pumps, where in individual quarters of 2019 the increases were



double-digit, which gave the heat pumps as a whole an increase of about 34% at the end of 2019. Photovoltaics keep attracting interest as a technology of acquiring solar energy for prosumer purposes, including power supply for heating devices in hybrid systems, particularly when paired with heat pumps, but also strictly for heating purposes, which used to be, but now is sometimes also, criticized. On the other hand, this solution successfully fulfils its purpose to the satisfaction of the users, particularly in energy-efficient houses under 100 m<sup>2</sup>. Also, 2019 saw the launch of a campaign promoting solutions consisting in complete electrification, including heat fully from RES by 2050, which also involves an increased share of electricity in the total energy balance. A certain consequence of these activities may be a further growth of interest in electric heating of various forms, including modern electric heating boilers and heating mats. In 2019, there was a noticeable, further increase in the popularity of using RES for heating purposes in any form. Also, 2019 saw further reinforcement of the tendency for gradual replacement of traditional wall radiators with surface heating systems. There was also a greater interest in automatics, enabling optimum energy management, including indoor heat management. This is an effect of a spreading campaign for implementing actions intended to increase the power efficiency in buildings.

Product group	Trend 2019/ 2018	Trend 2018/ 2017
Wall-hung gas boilers in total	+8%	+25%
Wall-hung condensing gas boilers	+15%	+30%
Conventional wall-hung gas boilers	-43%	-1%
Floor standing gas boilers in total	+17%	+20%
Floor standing condensing gas boilers	+18%	+19%
Floor standing conventional gas boilers	-13%	+20%
Gas water heaters flow-through	-11%	+1%
Floor standing oil boilers in total	-19%	-14%
Condensing floor standing oil boilers	-8%	-1%
Conventional floor standing oil boilers	-31%	-24%
Solid fuel boilers	No data	No data
Solar collectors	-15%	+179%
heat pumps	+34%	+31%
Tanks and buffers	+15%	+54%

Table 2. Changes to sales in individual product groups in 2019 vs. 2018

Support programmes for reduction of low emissions are currently diversified. Right now, the customers apply for the subsidy themselves, receive the grant and decide where to install. At the end of 2018, the thermal upgrade relief started playing a growing role despite numerous ambiguities, e.g. concerning the PIT cost deduction, which was also reflected in the 2019 replacement of heating devices.

In the case of multi-family buildings, located in urbanized areas, network heat satisfies a lot of the demand, which seems a simpler solution for the developers, who are hardly interested in the costs of future use and bills for network heat, which will have to grow. But the heating infrastructure is not always available at the sites of new residential estates, nor could it be realistically provided in the years to come. Nevertheless, there is an increasingly visible support for solutions which prefer usage of network heat as the basic heat source by the government administration and local authorities, which are often, in one way or another, affiliated with the heating network operators. Another phenomenon which positively impacts the development of the installation and heating market in 2019 are the actions of local governments, intended to reduce low emissions. In many regions of Poland, numerous support programmes emerged, based on the EU funds. Primarily Regional Operational Programmes, intended to restrict the low emissions by replacing old boilers with new ones. These activities are highly dispersed. Thanks to this support, whenever possible, investors replace old boilers with new ones, often more economical and energy efficient condensing gas boilers, which apart from much lower gas consumption, also provide practicably negligible amount of substances released into the atmosphere during combustion. Also, according to some information coming from the market, some of the current solid fuel boiler users, able to connect to the gas network, taking into account the rise in the price of the solid fuel boilers conforming to the fifth class of emission cleanness, decide to replace them with gas boilers, the price of which was practically unchanged (regular EUR price and rather stable EUR f/x rate in 2019), unlike the increasing production costs of solid fuel boilers made in Poland, which is caused by their having to meet stringent emission parameters, growing material costs, and the currently lower gas price. But this does not mean departing from solid-fuel boilers as the current national gas network coverage is not exactly a threat for this heating technology. Whereas in the solid fuel boiler group, in 2019 there is a noticeable trend to abandon coal as fuel, as a result of replacing solid-fuel heating devices with biomass, mostly pellet, which is why in 2019, the interest in the modern biomass boilers was noticeably higher.

Another phenomenon visible in the installation and heating market in 2019 was to withhold purchase decisions until the rules of the “Clean Air” programme are changed and information meetings in communes are held. This was particularly visible in the segment of gas boilers and heat pumps for heating. The beginning of 2019 saw a veritable suppression of solid-fuel

boiler sales, caused by waiting for the new rules of selling solid-fuel boilers as part of the Priority Programme “Clean Air”.

Anti-smog activities, which include, e.g., replacement of old devices with new one, significantly increased the share of the replacement market in the overall sales structure, which, according to market estimated, in 2019 held as much as

70 % share in the total sales volume, which highly affected the heating devices sales results in 2019.

There was also a noticeable increase in the importance of the Internet as a tool for finding technical and commercial information in the installation and heating industry. The SPIUG report published in 2020, regarding online sales of heating devices, shows that in 2019 there was a further increase in the popularity of this sales channel, but compared to the overall sales volume, this is still rather a media activity, with a total sales share under 10 %. After the period of January-December 2019, the heating device sales value is 13% higher than in 2018. In terms of quantity category, in 2019 the online sales of heating devices were 8% higher than in 2018.

It is also worth to note the percentage distribution of individual devices in the online sales.

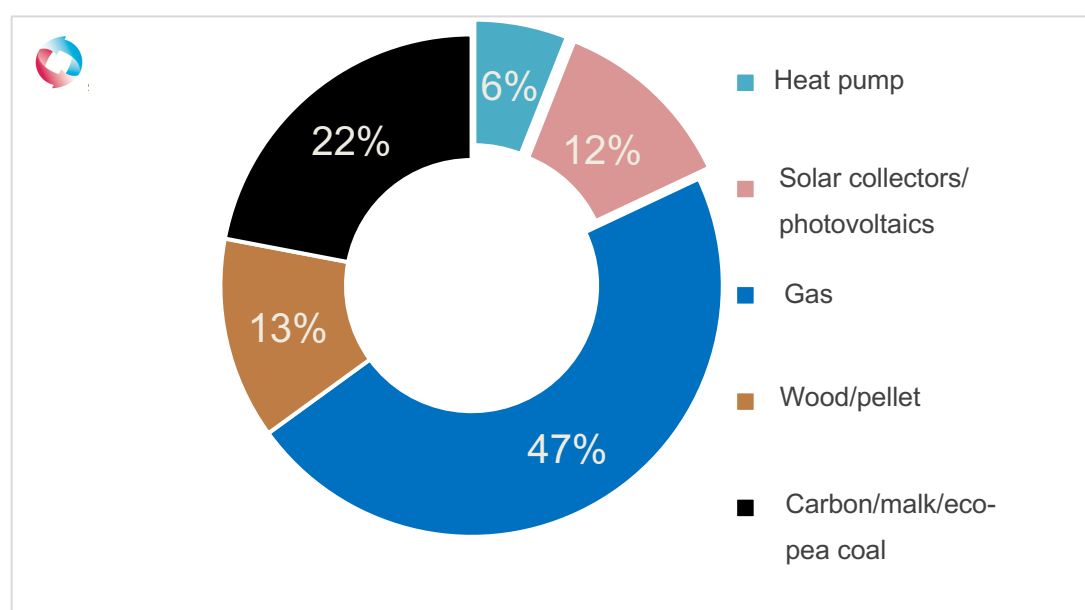


Fig. 7 Sales of heating devices by fuel type/medium in 2019  
(source: SPIUG study)

The analysis also demonstrated that the 10 largest online sellers sold 25% of all the heating devices sold online in 2019.

More information about the sales of heating devices and hot utility water heaters can be found in a report published on [www.spiug.pl](http://www.spiug.pl).

There is also a visible tendency where it becomes difficult to sell devices without installation because of online sales, where the offered low prices result from differences in VAT settlement. In 2020, one may expect quite a rapid increase in the popularity online sales of heating

devices because of the COVID-19 pandemics and the need for many major market players, formerly operating mostly in the traditional distribution channels, to switch to online sales for safety reasons. A certain negative phenomenon noticeable also in 2019 is that the customers pay little attention to the labelling of the devices and the regulation regarding mandatory product sheets attached to the devices is still not enforced, preventing the customers to see the differences between the boilers and the technologies. Unfortunately, this phenomenon is also common in other UE countries, but that is hardly a consolation. In 2019, according to highly preliminary estimates, the total market growth came to 8-10%.

### **3.1 Wall-hung gas boilers**

Since 2016, the market of wall-hung gas boilers has been practically dominated by condensing boilers. This is the result of implementing – in September 2015 – the requirements of the ecoproject and the associated EU orders to the ErP directive, which are supposed to prohibit or severely restrict the possibility of marketing any boilers other than condensing. In 2019 one could observe continued, dynamic sales growth for wall-hung gas boilers in Poland, caused by the aforementioned factors, although these increases, while still double-digit, did not have the same dynamics as in the preceding year. The total sales increase for wall-hung gas boilers was reduced by significant drops in the sales of conventional boilers. In the entire group of wall-hung boilers, the growth scale was about 8% for the entire year, compared to 2018.

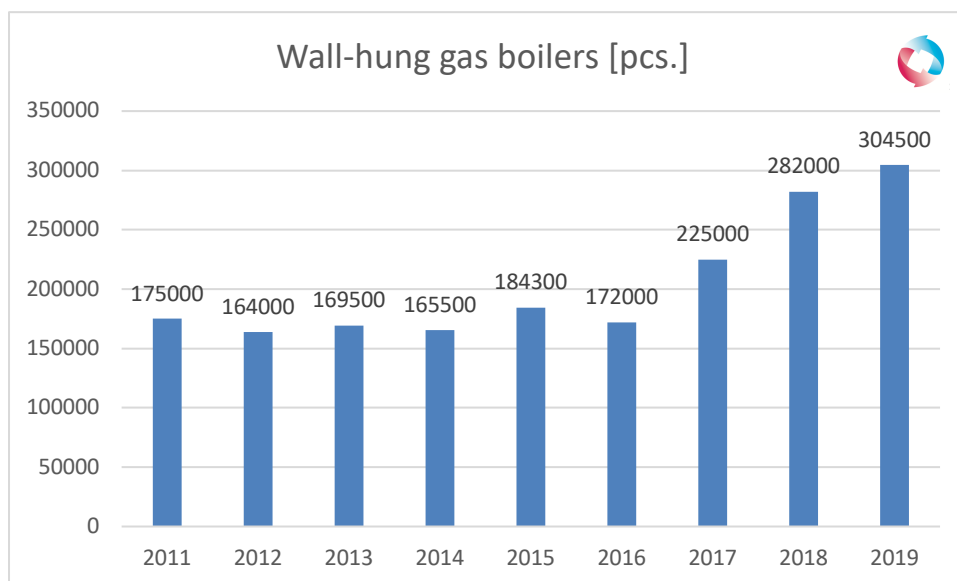


Fig. 8 Sales of wall-hung gas boilers in 2014 – 2019 (Source: SPIUG study)

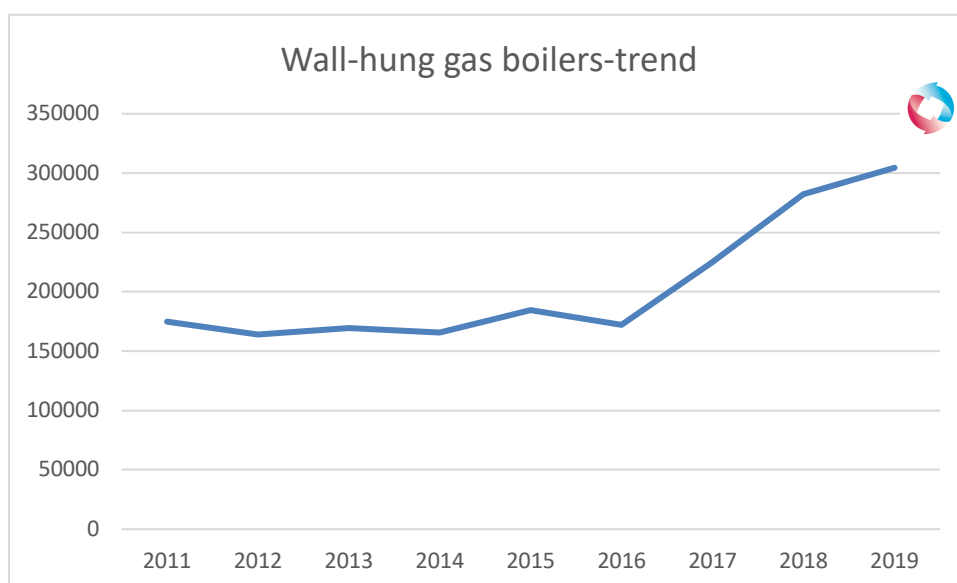


Fig. 9 Sales of wall-hung gas boilers in 2014 – 2019 - trend (Source: SPIUG study)

### 3.1.1 Conventional wall-hung gas boilers

After significant drops in the last two years and a certain stabilization at the end of 2018, 2019 saw a drastic decrease in the sales of these devices, which in the 4<sup>th</sup> quarter of 2019 was already over 50% compared to the 4<sup>th</sup> quarter of 2018. Analysing the performance for the entire 2019, the sales decrease for conventional wall-hung gas boilers was 43%. Where for technical reasons condensing boilers cannot be simply installed, new conventional boilers are installed, with better parameters. Usually, inquiries about the possibility of buying a conventional gas boiler come from customers who live in old buildings, where replacement of the

current conventional gas boiler with a condensing boiler would require an expensive modification of the central heating system along with an exhaust system in the entire building. But the market segment of the conventional gas boilers should be rather considered niche, going extinct. Due to the replacement market, its share in the wall-hung boiler group stabilized at 6-7%, which means a 50% drop compared to the end of 2018.

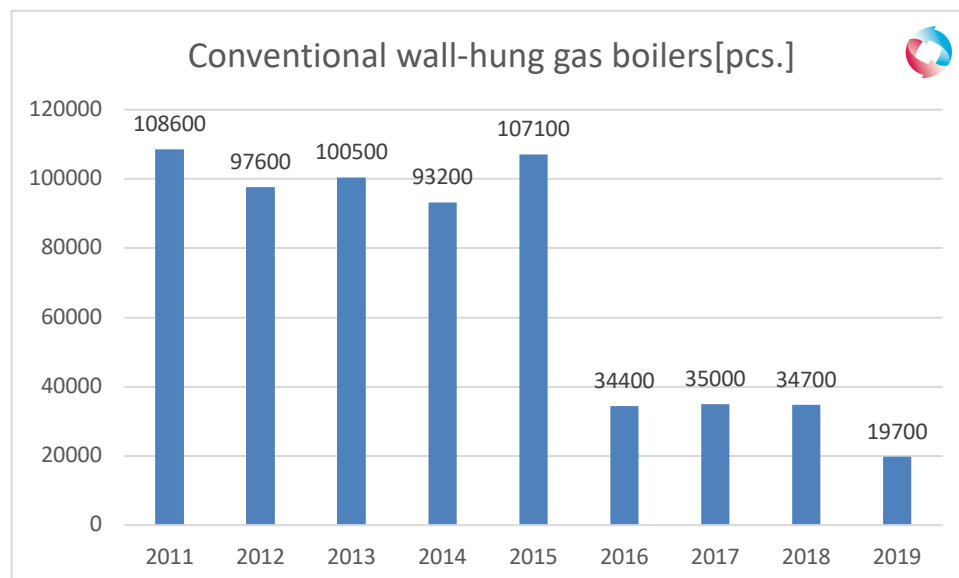


Fig. 10 Sales of conventional suspended gas boilers in 2014 – 2019 (Source: SPIUG study)

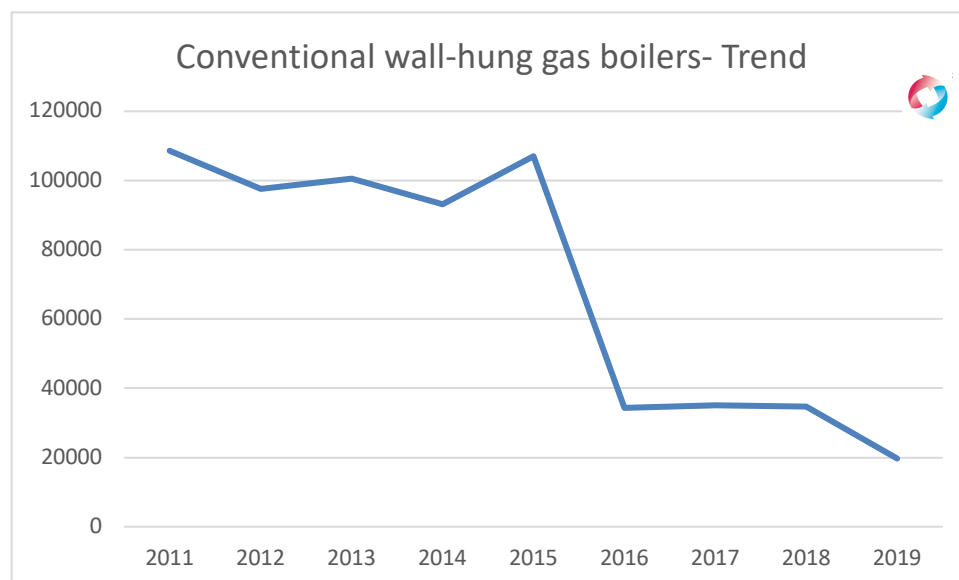


Fig. 11 Sales of conventional wall-hung gas boilers in 2014 – 2019 – trend (Source: SPIUG study)



### 3.1.2 Wall-hung condensing gas boilers

In 2019, there is still a trend for dynamic sales increase in this group of devices. Also among condensing boilers, there is a noticeable trend to find the cheapest boiler. In the recent years, the pricing war caused a certain relative drop in the sales of condensing boilers. The market of wall-hung gas boilers has been virtually dominated by these devices. Sales increases in the group of condensing wall-hung boilers in the entire 2019 of about 15-16%. Deducting semi-condensing boilers from the balance for condensing boilers, the increase in the wall-hung condensing boiler group was about 24%.

The significance of semi-condensing boilers, treated as cheaper alternatives for typical condensing boilers, is diminishing, with sales drop of about 31%.

The meaning of the quasi-condensing boilers is rather overrated as far as the development of the condensing gas boiler market in Poland is concerned. Their share in the group of wall-hung condensing gas boilers decreased to about 4%, compared to about 7.5% in 2018.

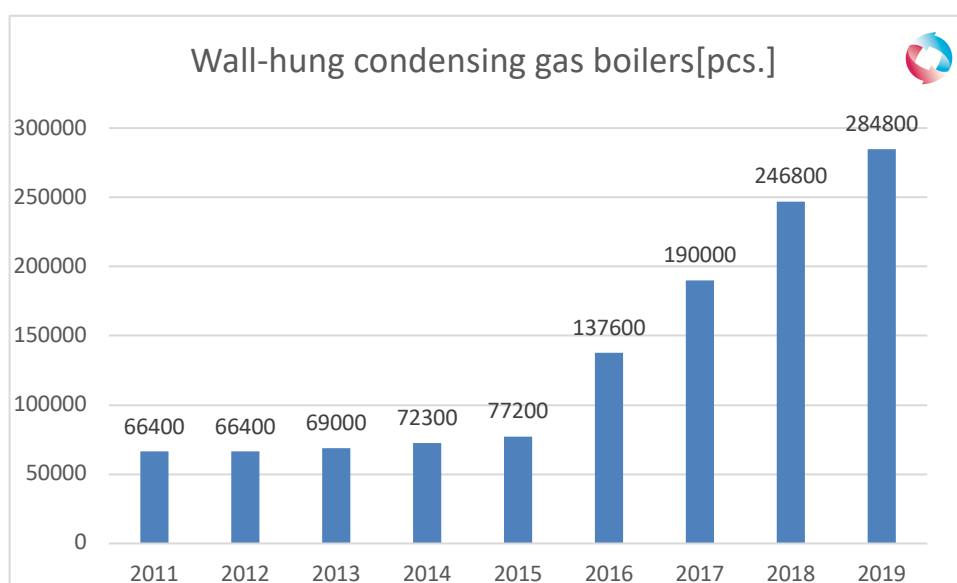


Fig. 12 Sales of condensing suspended gas boilers in 2014 – 2019 (Source: SPIUG study)

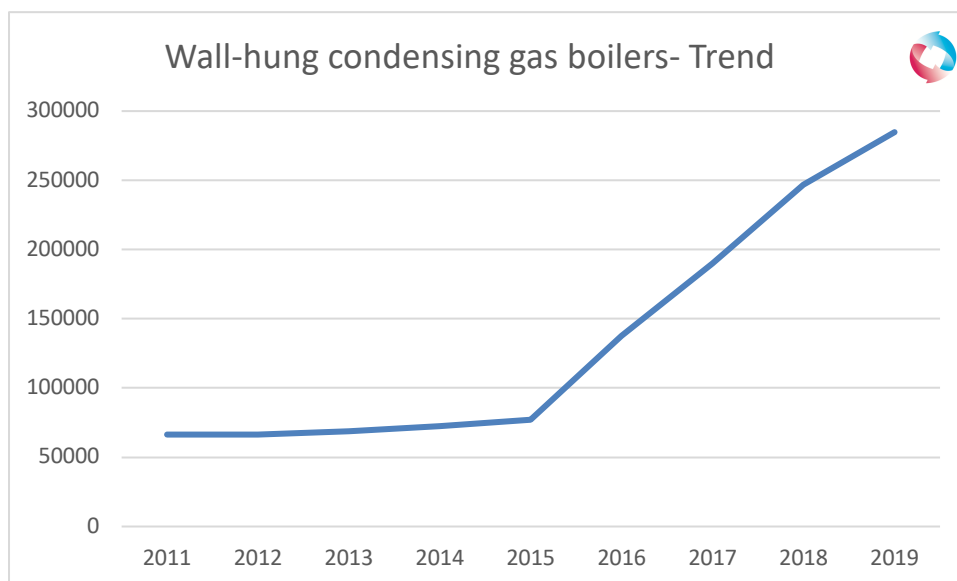


Fig. 13 Sales of wall-hung condensing gas boilers in 2014 – -2019 – trend (Source: SPIUG study)

### 3.2 Floor standing boilers (gas and oil)

The floor standing boiler product group includes a broad array of goods, differing in both fuel type and construction. Floor standing boilers can be fuelled with gas, fuel oil, solid fuels, including both coal and coal-derivatives, as well as with biomass of various types. Due to their nature, floor standing boilers can be classified as traditional devices, the installation of which requires a relatively large space, which is why over the years the market potential for these devices has been in decline, practically for all the fuel types, whereas the lowest sales drop concerns gas boilers due to widespread application of the condensing technology, where these devices were the only ones, apart from the biomass boilers, to register a sales increase in the entire product group of heating boilers. In the case of oil boilers, the cause of a reduced interest in this type of heating can be attributed to a lack of tradition of using this fuel oil in Poland and frequent issues with the quality of this fuel, due to high sulphating. The market potential drops in the solid fuel boilers group were more connected with switching to other heating devices, with no or reduced low emissions, and connecting to municipal central heating networks, as well as a major decrease in the popularity of coal-fired boilers in favour of biomass-fired boilers, where the sales increases for biomass boilers failed to offset the major drops in the coal boiler sales.

### 3.2.1 Floor standing gas boilers

In the group of floor standing gas boilers, the sales increase in 2018 was 17%, with a simultaneous 13% decrease in the sales of conventional floor standing gas boilers, whose share in the total sales volume is currently negligible.

In the case of conventional floor standing gas boilers, just like in other condensing boiler groups, quite significant increases were recorded too, which 2019 came to about 18% for low-power boilers (up to 50kW), with a certain stabilization and a minor, 1% sales increase for high-power boilers (over 50 kW). Floor standing boilers are currently more popular, but due to their dimensions, the market potential for this group of heating devices is diminishing. Low hydraulic resistances offered by these solutions eliminate the need for a hydraulic clutch and make them suitable for surface heating; they are usually used in non-residential buildings.

It should be remembered that with relatively low basic quantitative potential, sales or lack of sales of even small number of the devices is reflected in quite a significant percentage shift of the sales volume. It is also worth to notice a high, 230% increase for boilers sold without a burner, due to a significant increase in the 4<sup>th</sup> quarter of 2019, compared to a small decrease of 6% in 2018. But also in this case one should take into account the relatively low reference base, where sales increased by several dozen or several hundred device results in major percentage increase in the statistics. To supplement the sales data for floor standing gas boilers, it is worth to note a 21% sales increase for boilers with integrated reservoir, referred to as “fridges”, because of their appearance.

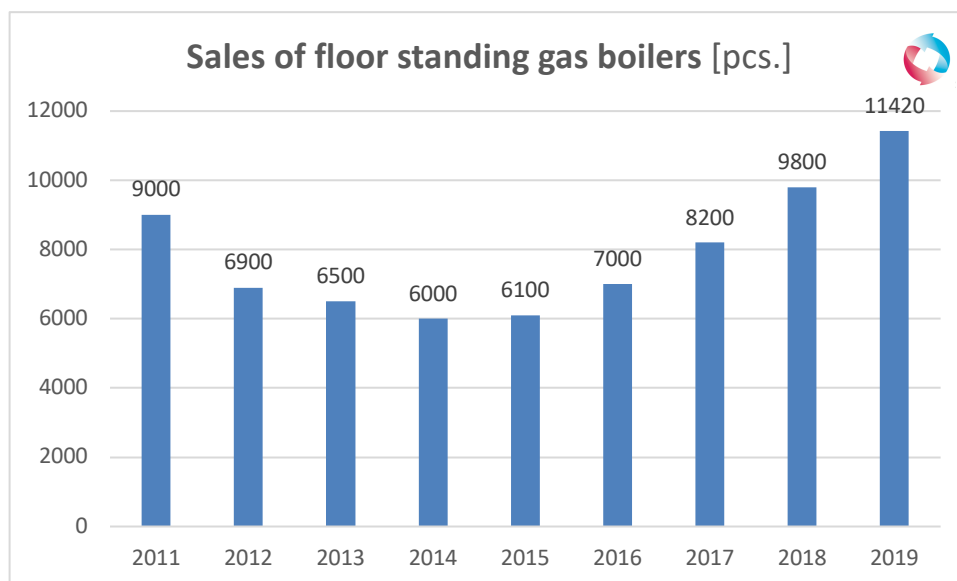


Fig. 14 Sales of floor standing gas boilers in 2014 – 2019 (Source: SPIUG study)

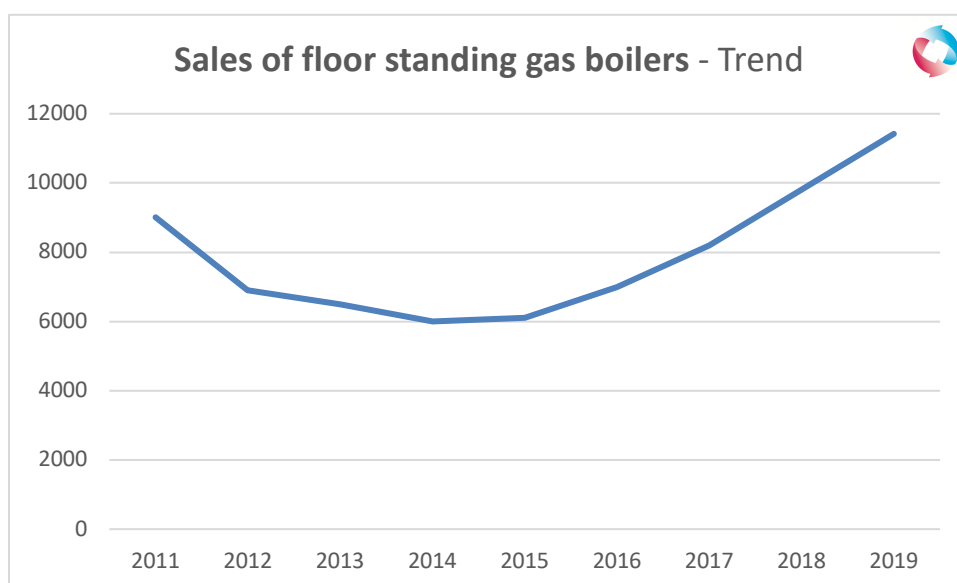


Fig. 15 Sales of floor standing gas boilers in 2014 – 2019 - trend (Source: SPIUG study)

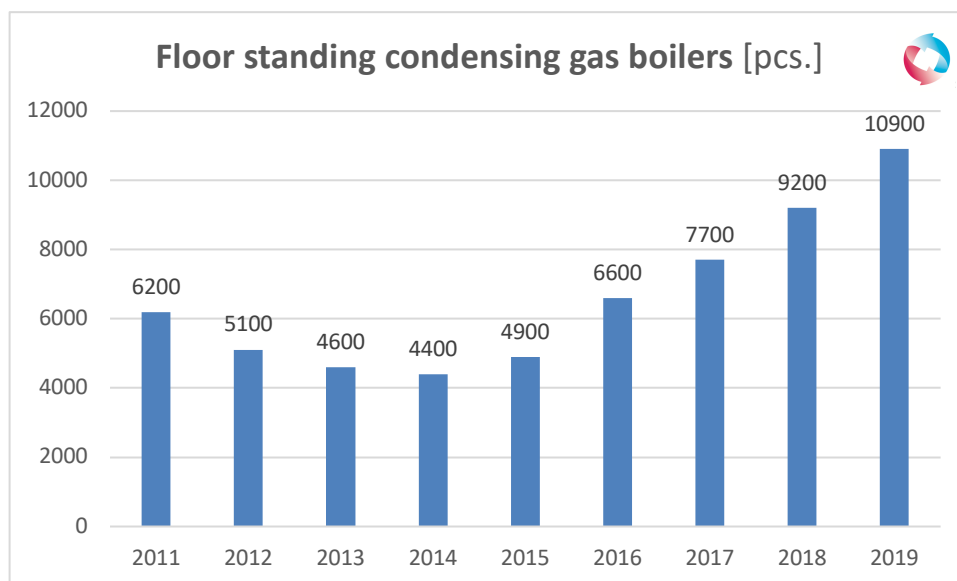


Fig. 16 Sales of floor standing condensing gas boilers in 2014 – 2019 (Source: SPIUG study)

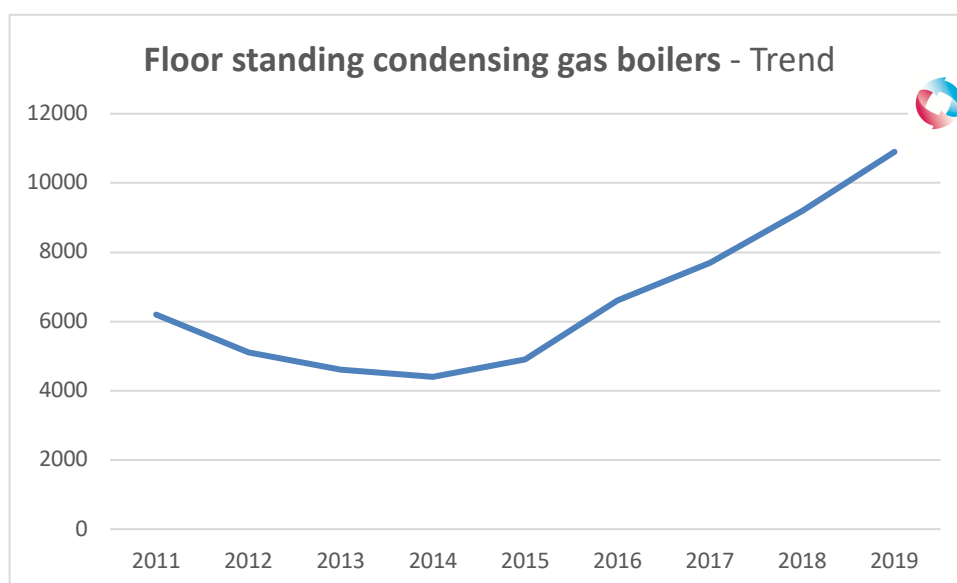


Fig. 17 Sales of floor standing condensing gas boilers in 2014 – 2019 – trend (Source: SPIUG study)

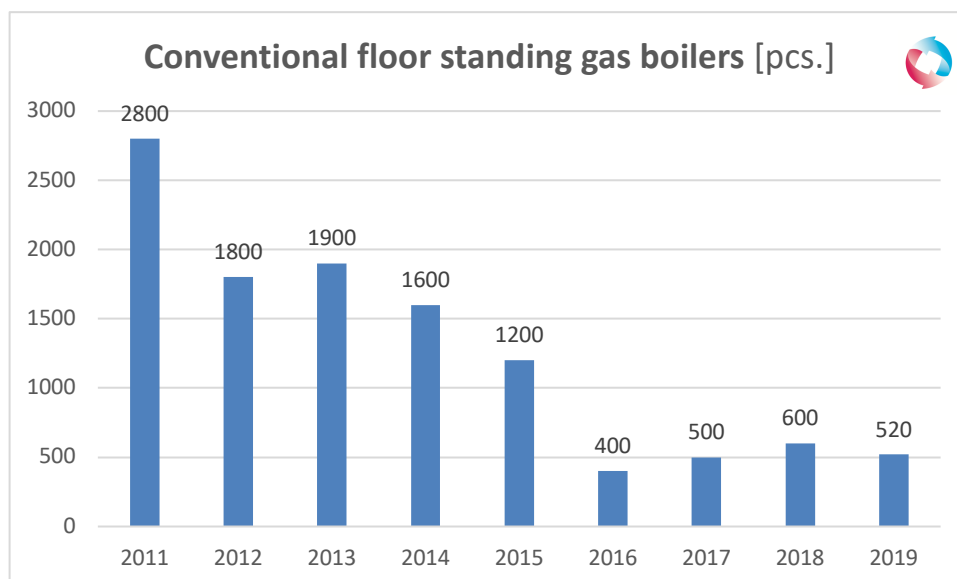


Fig. 18 Sales of conventional floor standing gas boilers in 2014 – 2019 (Source: SPIUG study)

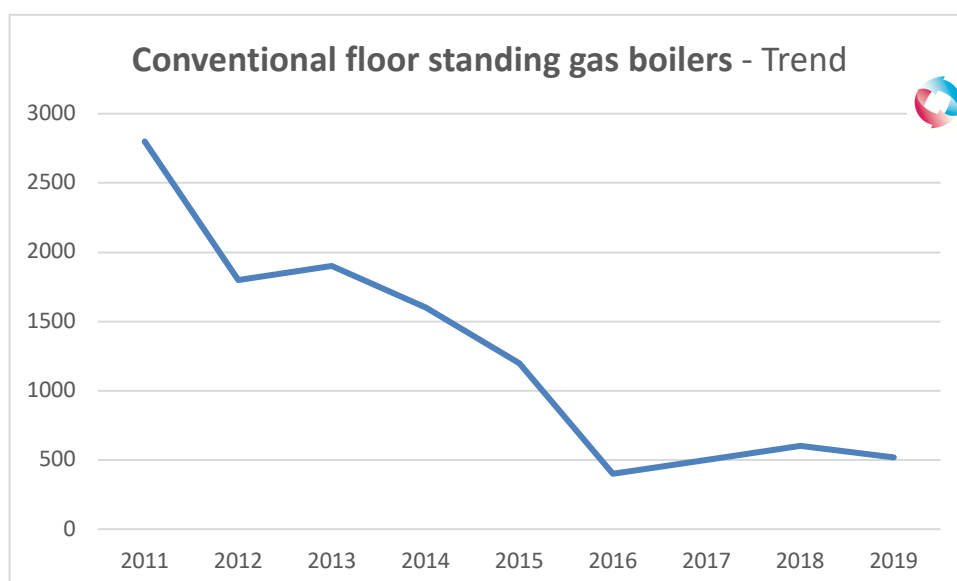


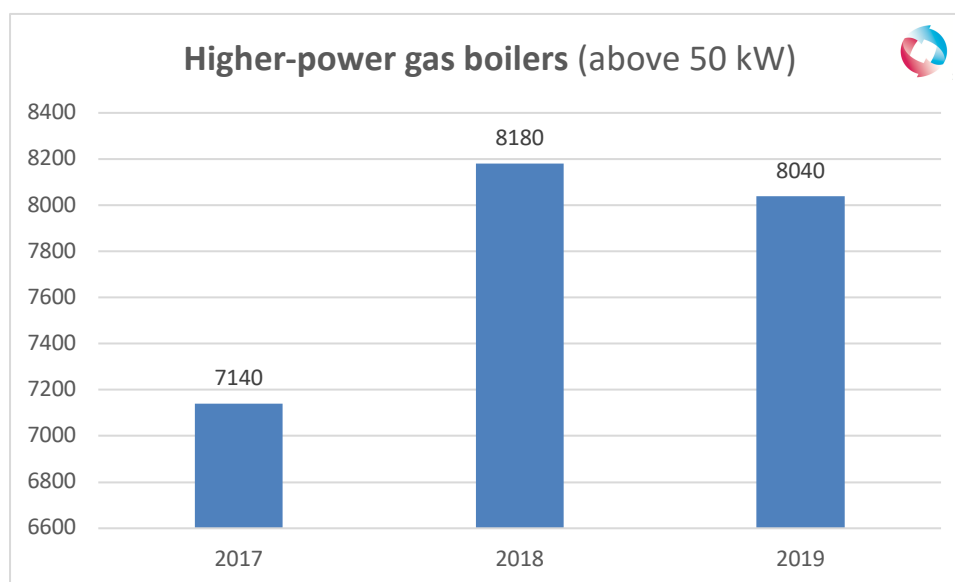
Fig. 19 Sales of conventional floor standing gas boilers in 2014 – 2019 – trend (Source: SPIUG study)

### 3.2.2 Higher-power floor standing gas boilers (over 50 kW)

In 2019, the situation the product group of high-power boilers, i.e. over 50kW, was stable, with a slightly downward trend. In this group, the condensing boilers are absolutely dominant. The market potential difference between condensing and conventional boilers is an order of magnitude. It is a specific, niche product group, intended for heating public and non-residential buildings, used in residential buildings in exceptional cases only, when there is no possibility

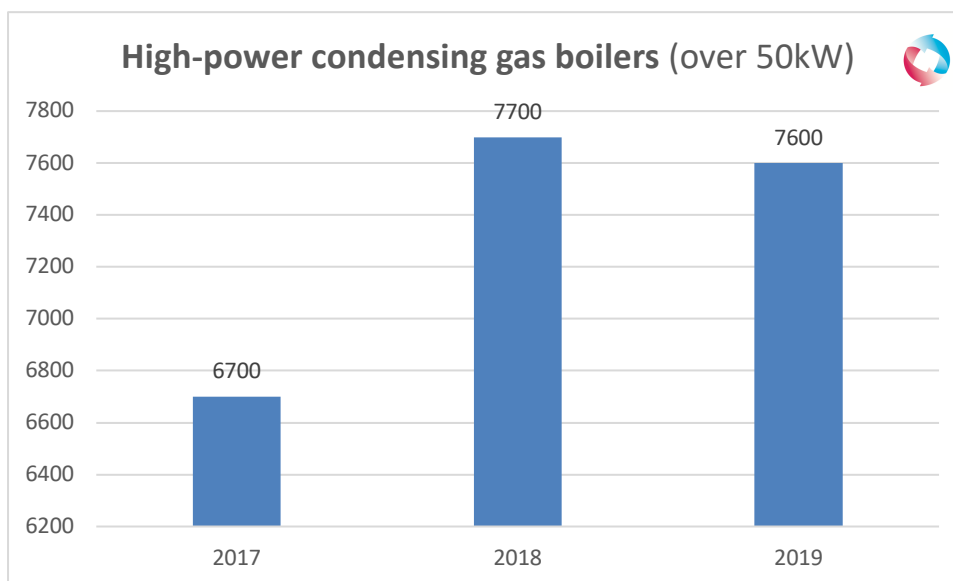


of connecting to the municipal central heating system, while connection to the gas supply system is available. In view of the current government preference for central heating systems, the sales market for these devices may shrink even further, unless the companies managing heating systems find it difficult to complete expansive activities consisting in development of the existing transfer systems for heat, and installation of a high-power gas boiler is the only solution.

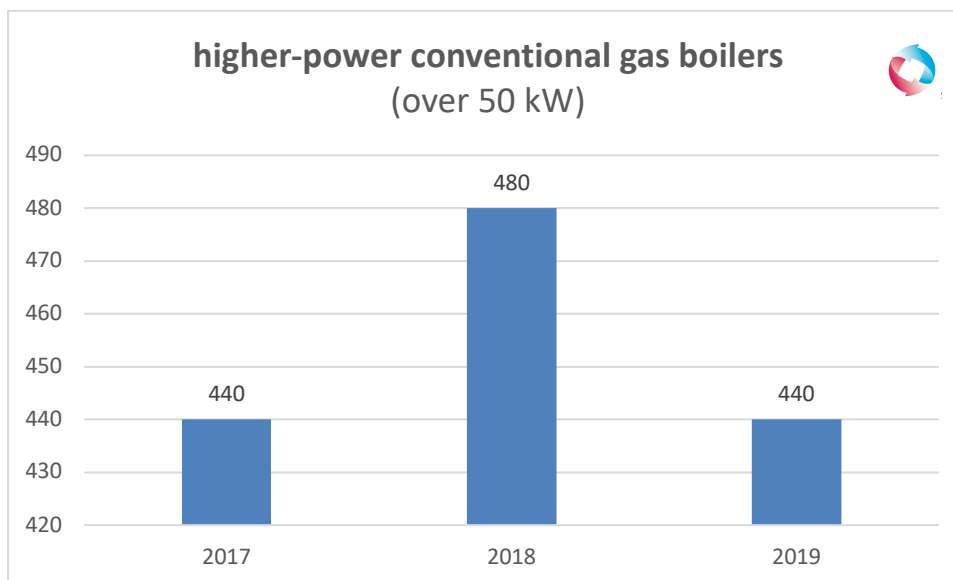


**Fig. 20 Sales of higher-power gas boilers in 2017 – 2019 (Source: SPIUG study)**

The 2% decrease in the sales of high-power boilers is the result of the network heat expansion, which is growing in the areas where high-power boilers are usually used. For this reason, apart from few exceptions, where this is not possible, but a gas mains connection is available instead, the sales are aimed mostly at modernization of the existing systems. In the condensing boilers group, the suspended boilers hold about 85% of the share. The following charts show the trend in the high-power boiler sales for condensing and conventional devices.



**Fig. 21 Sales of high-power condensing gas boilers in 2017 – 2019 (Source: SPIUG study)**



**Fig. 22 Sales of higher-power conventional gas boilers in 2017 – 2019 (Source: SPIUG study)**

### 3.2.3 Floor standing oil boilers

In Poland, oil boilers are not as popular as in the Western Europe. This results from a different structure of fuels used for heating. In Poland, fuel oil was traditionally perceived as an expensive heating fuel, which several years ago caused a significant reduction of the market potential. Starting from 2016, these devices saw a certain renaissance, caused by – among other

factors – increased availability of fuel oil, due to its more affordable price and easy operation. In 2017, there was a certain increase in the sales of oil boilers, coming to 11-12%, whereas in the group of condensing device this increase was about 20% in the entire 2017. In the oil boilers group, the sales drop from 2018 continued in 2019, coming to about 19% year by year. The sales drop concerns mostly conventional boilers, as for the condensing boilers this drop was about 8%. In the case of conventional oil boilers, the drops were higher than for the condensing boilers, which seems natural with the ecodesign requirements in place. Nonetheless, the oil boiler market in Poland is practically split even between condensing and conventional boilers, albeit with a downward trend in the share of the conventional boilers. One of the reasons behind lower interest in the oil boilers, apart from the fuel costs, is the issue of the fuel quality and lack of tradition for this type of installations in Poland. As the fuel available in Poland is highly sulphated, some of the manufacturers refuse to give warranty for these devices, particularly those with higher output.

Just like in the case of the floor standing gas boilers, there is currently no significant market potential for selling devices of this type.

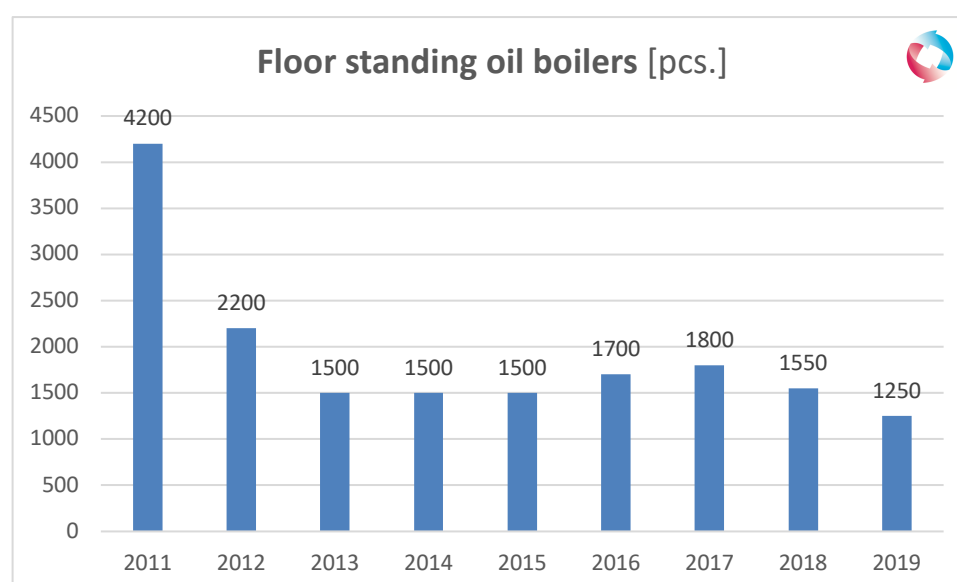


Fig. 23 Sales of floor standing oil boilers in 2014 – 2019 (Source: SPIUG study)

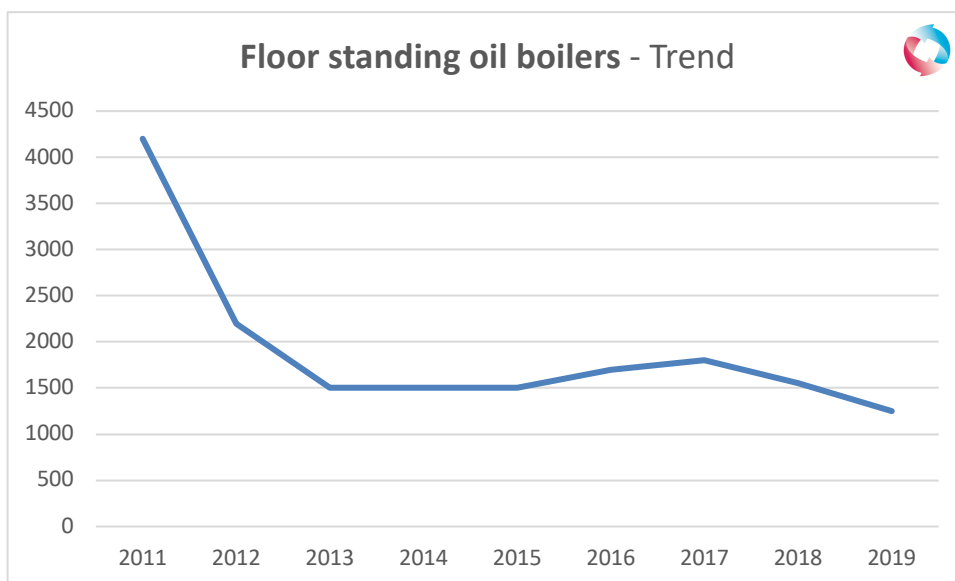


Fig. 24 Sales of floor standing oil boilers in 2014 – 2019 - trend (Source: SPIUG study)

Observing the chart of sales trends for oil boilers, one may assume that after a drastic sales drop in 2011-2013, the market has stabilized. Even the double-digit drops which took place in 2018 and 2019 are the result of a certain upset of the demand, where sales differences of several dozen or several hundred devices are clearly visible in the percentage values of the changes in the sales dynamics.

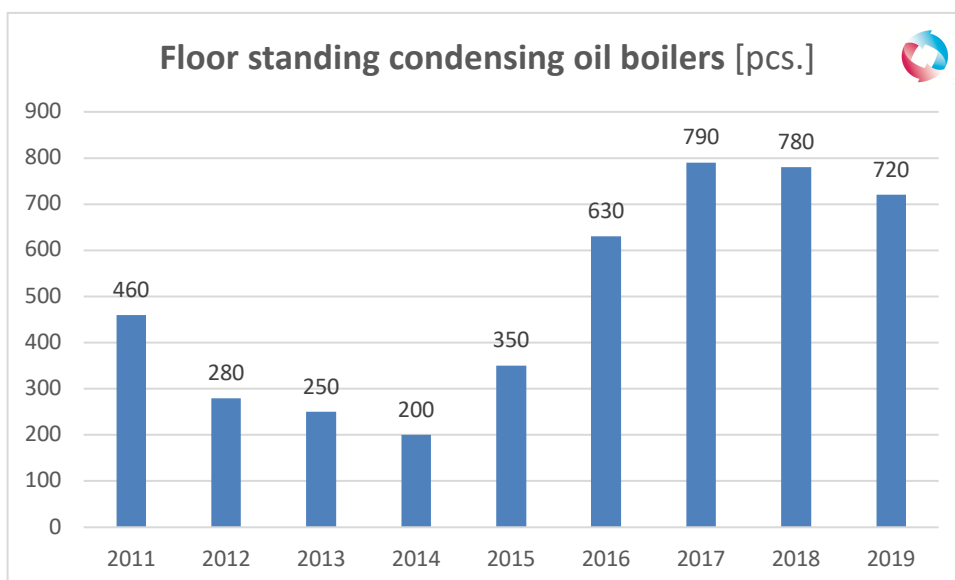


Fig. 25 Sales of floor standing condensing oil boilers in 2014 – 2019 (Source: SPIUG study)

In the condensing oil boilers group, the sales drops in 2019 were slightly higher than in 2018 and came to about 8 %. Observing the trend in the market potential changes for condensing

oil boilers, it is easy to notice that implementation of the eco-design requirements in 2015 caused an increased interest in the purchase of condensing oil boilers. Nonetheless, in 2017 the situation stabilized with a slightly downwards trend, whereas in other groups the sales volumes grew considerably. This means that some of the replaced devices were substituted by other heating technologies.

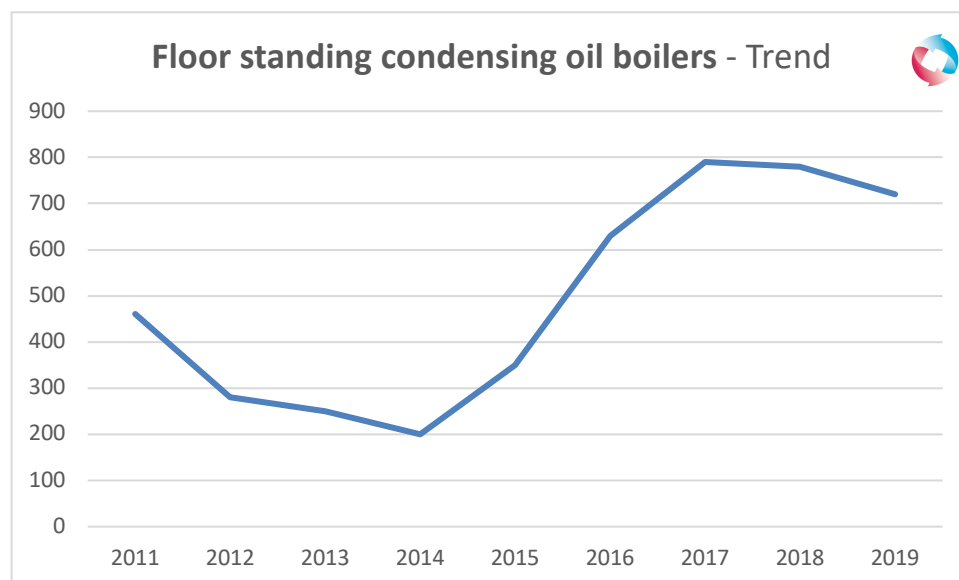


Fig. 26 Sales of floor standing condensing oil boilers in 2014 – 2019 - trend (Source: SPIUG study)

In the case of conventional oil boilers, the 31% drop was higher than for the condensing boilers, which seems natural with the eco-design requirements in place. Nonetheless, the oil boiler market in Poland is practically split even between condensing and conventional boilers, albeit with an increasing downward trend in the share of the conventional boilers in favour of the condensing boilers.

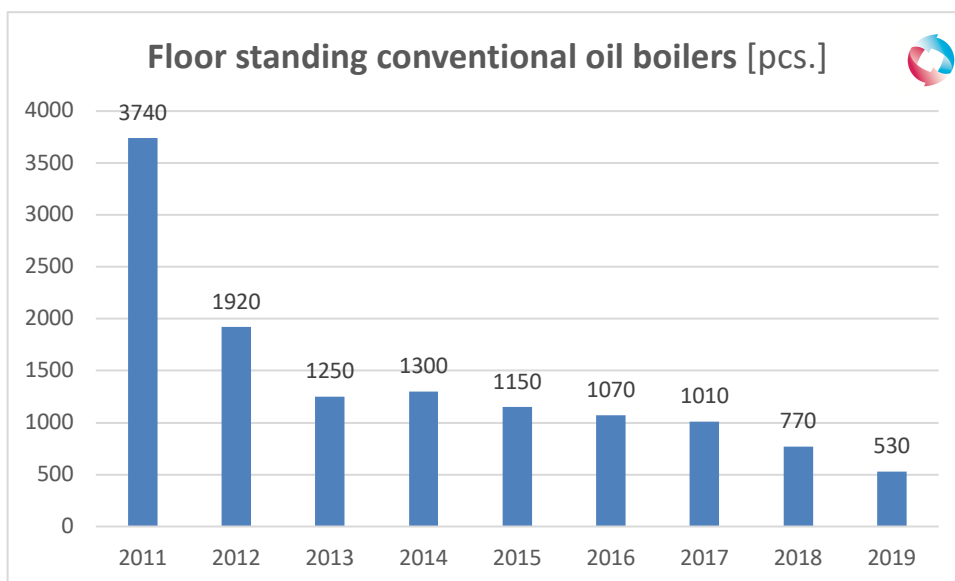


Fig. 27 Sales of floor standing conventional oil boilers in 2014 – 2019 (Source: SPIUG study)

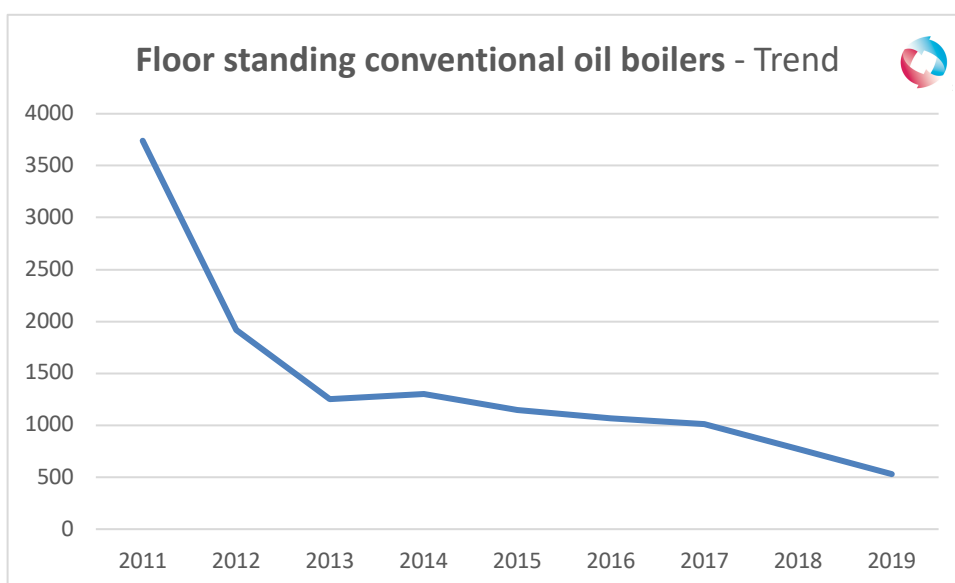


Fig. 28 Sales of floor standing conventional oil boilers in 2014 – 2019 - trend (Source: SPIUG study)

### 3.3 Solid fuel boilers

In 2019, the interest in purchasing solid fuel boilers was noticeably reduced, mostly due to the significant drop in the popularity of boilers fuelled with coal and its derivatives. The downward sales trend continued throughout 2019, with a 20 or even 30% sales drops year by year, according to the information received from the market. 2019 saw a 30% decrease in the popularity of automatic coal boilers, with a much higher sales drop for hopper coal boilers, with a



significant increase in the popularity of automatic biomass boilers – up to 30%. At least, this is the opinion of the official sales channels. Still, despite the applicable regulations and declarations of eliminating the so-called “waste boilers” from the market, devices of this type can still be easily bought online. Part of the market certainly survives in the so-called grey area, where boilers without the required attestations or with questionable documents are sold. The industry awaits positive results of commercial inspections, announced by the Ministry of Entrepreneurship and Technology, and later the Ministry of Development, intended to eliminate, or at least restrict, this sort of practice. The scope of the so-called grey area is unknown, though one may optimistically assume this is not a mass phenomenon, although it is visible in the market and in the media. The drop in the sales of solid fuel boilers is mainly caused by the activities intended to reduce the low emissions. In urban areas, where the heating system infrastructure exists or is being built, buildings heated with obsolete solid fuel boilers which emit a lot of various pollutants into the atmosphere, are connected to heating systems or, if gas supply systems are available, the solid fuel boilers are replaced with condensing gas boilers. This is one of the reasons why the potential of the solid fuel boilers is shrinking. In the non-urban areas, the solid fuel boiler market is traditionally based on the replacement market. In 2018, replacement of old boilers with new one, which assumingly would meet the current, stringent emission standard, was aided by support programmes, just like in the case of gas boilers. A minor increase was recorded in the sale of manual, class 5 boilers, yet their market share is still marginal at 1.5-2%. Based on the opinions collected from the market, one may assume that in 2019 the biomass boilers constituted as much as 60-65 % of the boilers sold officially, which confirms the continued interest in using this type of fuel for heating purposes – for comparison, in 2017 they constituted only about 16-20% of the entire sales volume, while in 2018 this proportion was about 35-40%. The regress and decline of interest in the solid fuel boilers as a whole is also the consequence of both regional restrictions on their installation, and an increase in the average prices of these devices, caused by the need to adopt them to the currently applicable devices. Yet, one should note another positive trend, that is the constantly growing popularity of biomass boilers, particularly those using pellets. At the same time, there is a noticeable, growing interest in boilers which gasify pieces of wood. The manufacturers of solid fuel boiler, in the face of restricted coal usage, are increasingly switching their production profile to boilers fuelled with various types of biomass. Hence the noticeable drop in the popularity of eco-pea coal boilers. There was also a noticeable impact of postponing decisions regarding boiler room modernization in expectation of the effects of amendments to the “Clean Air” programme, as well as waiting on decisions regarding subsidies as part of support programmes. In the case of manually-charged coal boilers, it can be assumed that since the beginning of 2019, the sales volume plummeted, even by 80%, at least in the official sales. Numerous manufacturers discontinued the sales of these devices and, in their opinion, box-type coal boilers are no longer purchased at all, and are made only sporadically, to order, hence their supply in the so-called grey distribution. This market assessment may seem significantly understated due to sales of the unclassified boilers in the

so-called grey area, outside any statistics or market monitoring. In view of the market potential decrease, some of the solid fuel boiler manufacturers periodically suspended production, while others kept the solid fuel boilers in their offer as goods made to order, redirecting production to other goods.

The product group of solid fuel boilers is very fragmented and hard to classify, due to the fuel type and capacities of the devices offered in the market. This group includes devices with capacity ranging from over ten kilowatts, to several hundred kilowatts and even over 1MW. Due to relatively high number of manufacturers, both professional who manufacture the devices in modern factories employing several hundred people, and small factories with several employees that make the boilers by handicraft, it is difficult to create any reliable statistics, which is why at this stage we can only rely on market estimates collected directly from the manufacturers and distributors of solid fuel boilers in Poland, as well as partial quantitative statistics, collected from part of the active manufacturers. A gross majority of these devices is made in Poland. The share of imported solid fuel boilers in Poland is marginal, and mostly applies to specialist boilers for biomass. Currently, SPIUG has taken measures to, similarly to other groups of heating devices, create a fully reliable monitoring of the device market in Poland for solid fuel boilers in the near future. Should this project succeed, the estimated data on which this report is made will be verified. Unfortunately, some of the manufacturers' attitude towards any joint activities which would enable an estimated assessment of the market and growth tendencies, based on specific data, is for some reason negative. Substitutes, consisting in assessing the competition's production based on, e.g. the quantity of metal sheet sold in Poland, which could as well be used for other purposes, is rather far from actual data which would emerge based on collecting the actual numbers of the devices sold throughout the year.

In 2018, the solid fuel boiler group underwent significant changes at the end of the year, due to implementation of an order dated 2017-10-02, which increased the emission requirements for this type of devices. According to this order, theoretically, since 1st July 2018, it is forbidden to sell and install solid fuel boilers which do not meet at least class 5 standard as per PN-EN 303-5. Some manufactures obeyed these regulations, losing their market share in favour of those manufacturers who were selling old boilers under new names. This was possible thanks to a loophole in the currently applicable order. It was later amended and tightened up, and in this form came into effect at the beginning of 2019. This order is very needed and is a step in the right direction. It has already made a significant impact on the shape of the solid fuel boiler market, consistently increasing the sales share of modern devices fuelled with biomass, conforming to the latest eco-design requirements, although this happens at the expense of reducing the total demand volume for solid fuel boilers. The anti-smog programmes forced the manufactures and distribution to switch to class five solid fuel boilers, yet, the general results indicate that the retail market shrunk significantly. This was probably caused by the subsidy programmes implemented by local government bodies. The decrease in the quantitative volume was followed by a drop in the turnover achieved in this product group, yet

assuming that more technically advanced devices are purchased, this means a greater drop in the quantity of sold devices with a smaller turnover reduction. There is a widespread opinion that the inability to buy cheap devices and the increased prices of the class five boulders could redirect some of the customers towards gas boilers, wherever a gas distribution system is available. This theory seems less likely in the case of biomass boilers, due to the relatively small volume of non-urban areas with an access to a gas distribution system – it rather concerns urban area, where, so far heating was provided by the so-called „stinkers”, which are now eliminated by connecting to the municipal heating system or gas boilers, as long as this connection is possible. A certain new phenomenon is replacing solid fuel boilers with increasingly expansive heat pumps, in the areas traditionally reserved for solid fuel boilers.. These are areas without access to the municipal central heating system or gas distribution system, where a heat pump can become a perfect alternative for the solid fuel boilers.

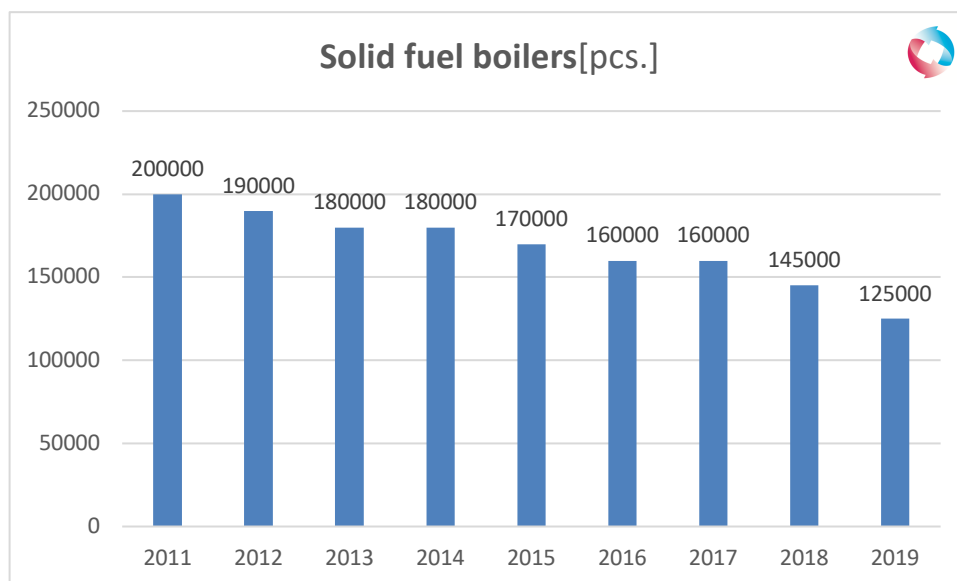


Fig. 29 Sales of solid fuel boilers in 2014 – 2019 (Source: SPIUG study)

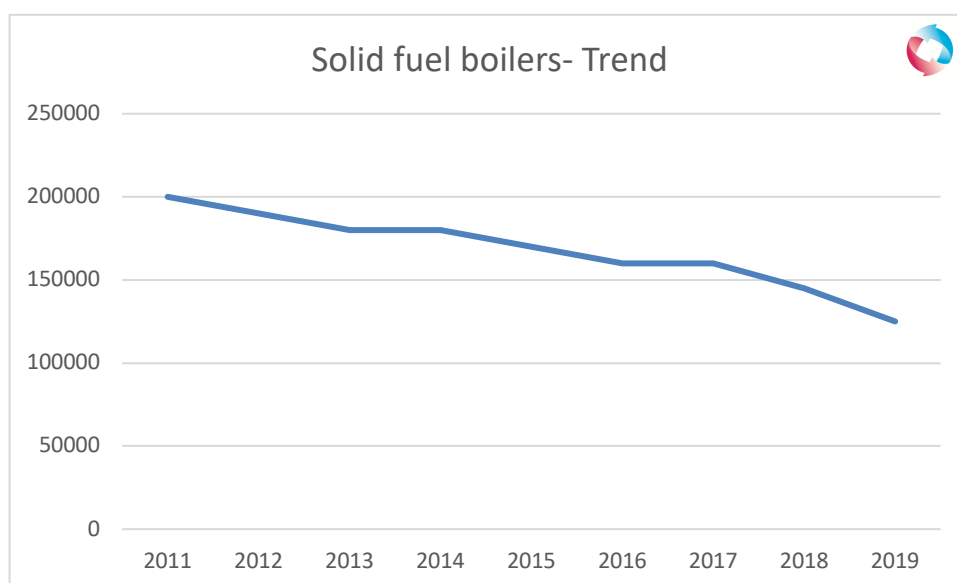


Fig. 30 Sales of solid fuel boilers in 2014 – 2019 – trend (Source: SPIUG study)

### 3.4 Heat pumps

In 2019, just like in the preceding year, there was a visible increase in the popularity of modern, advanced, electrical heating devices, such as heat pumps and modern flow-through boilers. This also applies to electric hot utility water heaters, both tankless and storage. Also, in 2019 there was a lot of talk about the plans to electrify heating in the future. Heat pumps are indicated as the primary solution to achieve this goal.

In 2018, heat pumps had a significant rise in sales, which, in total, are estimated at 34%. The increase value was different for various types of heat pumps. Traditionally, the highest increases were recorded for air pumps, where the increases, both quarterly and yearly, in some cases were over twofold. In other groups of heat pumps, stabilization occurred, or the increases were slightly lower. The interest in the hot utility water heat pumps increased by about 9% compared to the preceding year, where the sales increase in this product group was the same. In 2018, ground pumps registered a noticeable, 18% increase, which is a good result, taking into account the costs of making such an installation and drops in certain groups of ground pumps, by about 10%. The stable growing trend in the heat pumps groups is a result of a consistent information and promotion policy, both in Poland and in other EU countries. In Poland, the heat pump manufacturers group is the most organized, compared to other RES heat solutions, e.g. compared to the biomass boilers or solar collectors. Joint activities clearly translate into an effective promotion of the given solution. There is also a growing interest in heat pumps as devices working in hybrid systems with gas boilers or solar collectors, as well as PV as the power source, which is more and more often used in hybrid systems with heat pumps. In 2019, the first of the so-called houses without bills were built, based on a hybrid system of heat pumps and PV panels.

A certain support for the heat pump market can be the priority programme NFOŚiGW „Clean Air”, which is starting to make the investors aware of the possibility of obtaining subsidies and reducing emissions, which is starting to have a direct effect on the popularity of heat pumps as an emission-free heat source. The heat pump installers were loaded down with work at the beginning of 2019, and do not accept any new orders. There are not many such installers, and the market is growing. New installers of heat pumps must be trained, but their numbers grow slower than the market. The number of heat pump manufacturers in the market is growing too, mainly by adjustment or extension of the product portfolio by the current manufacturers of solid fuel boilers, whose market has been shrinking for the last few years and they seek alternative solutions to continue their business activity.

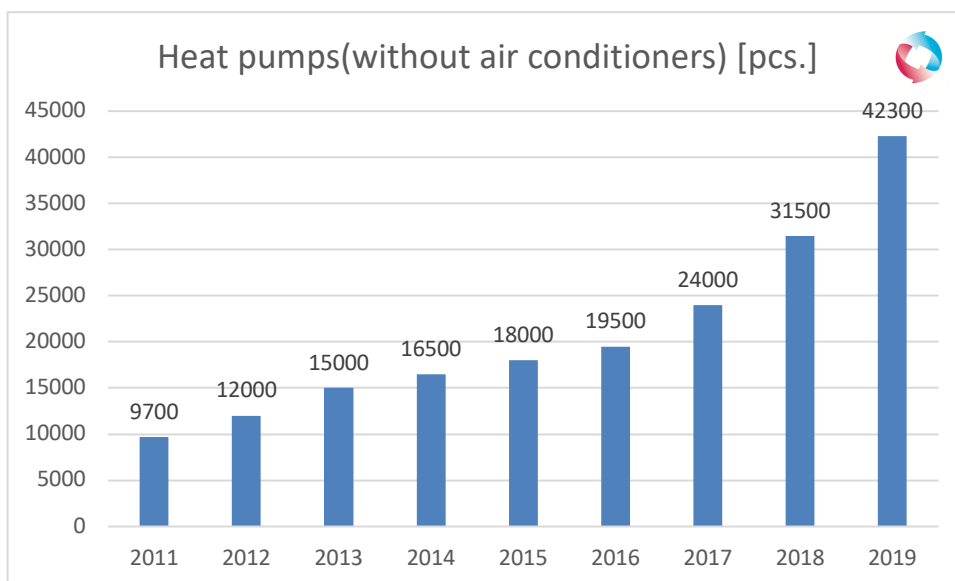


Fig. 31 Sales of heat pumps in total in 2014 – 2019 (Source: SPIUG study)

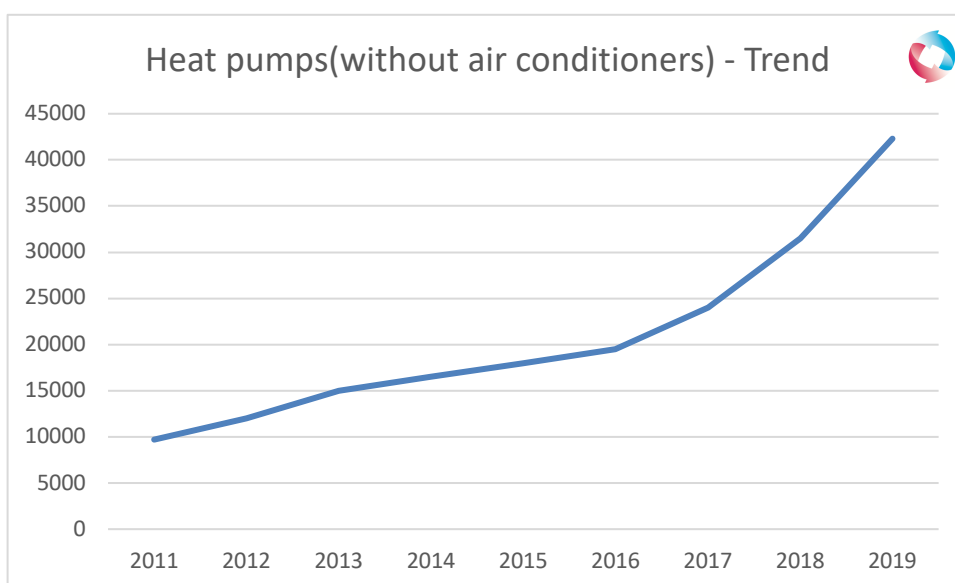


Fig. 32 Sales of heat pumps in total in 2014 – 2019 – trend (Source: SPIUG study)

### 3.5 Electric heating

In 2019, the popularity of modern, electrical heating devices increased again. This also applies to electric hot utility water heaters, both tankless and storage.

The current increase in the popularity of electricity as heat source is affected by several factors, such as: increasing (better) statutory requirements for building insulation, growing awareness of the investors, popularization of photovoltaics (with an even greater budget

support, this market could grow much more), increasing spending power and economy of the society, in the form of developing middle class, and the resulting search for a comfortable heating form, e.g. for weekend or holiday homes. There is also a noticeable trend for dual heating, i.e. with two heat sources, one of which is an electric boiler.

The electrical heating market is growing year by year, thanks to the development of alternative power sources, which significantly reduces the ongoing operating costs, which used to be a traditional barrier for this type of heating.

In 2019, the market growth was higher than previously estimated, coming to 10-15%. The distinct growing trend, visible in the last several years, is affected by the aforesaid factors, i.e.: development of PV systems, anti-smog subsidies in communes, more energy efficient houses with low demand for heating energy, possibility of using cheap electricity tariffs thanks to a combination with a heat accumulation buffer, increased wealth and search for comfort. One of the solutions which could positively affect the development of electrical heating would be to develop the idea of houses without bills, based on installation of a hybrid heating device and a prosumer installation for generating electricity based on the RES, that is photovoltaics and small wind turbines. According to the opinions collected from the market, the increased sales of electrical boilers in the Polish market is currently affected by the development of photovoltaics, caused by purely market factors and the programmes „Prosumer” and „My Current” (despite their flaws).

More and more investors decide to build „near-zero energy” houses. For houses with useable surface area  $>100\text{m}^2$  (the most often built in Poland), the most beneficial solution is a PV installation in a hybrid system with a heat pump, which seems the most favourable in terms of investment, which has a direct impact on the dynamic sales growth in the pump market. For smaller houses, with surface area  $<100\text{m}^2$ , and those meeting the condition of heating energy consumption  $<40\text{kW/m}^2/\text{year}$  (the share of these buildings is growing fast) – it seems more economical to invest in a slightly larger PV installation and direct heating with electrical devices (heating cables, heating film or electric boiler).

In the electrical heating device market, one may also observe an increasing diversification of the heat sources, which gives the customer an expanding freedom of choice. In terms of value, the leading electrical heating devices are certainly heat pumps, electrical central heating and hot utility water boilers utilizing resistance and electromagnetic technology, convection and oil electrical heating as well as electric and water-electric bathroom radiators, as well as solar-collector installation sets with accumulation tanks. Further on, there is floor and surface heating (heating cables and increasingly popular heating films), followed lastly by accumulation stoves and decorative heaters, usually made of stone, which fulfil a similar function. According to the information collected, the customers buy quite a lot of small heating devices with a fan, but we had no access or there are no reliable data regarding this method of heating, and these devices cannot be considered fixed elements of the building heating system.

Electrical heating has quite a new meaning for households, it is becoming more accessible and easy to install in buildings. The market is open to various products, there are various electrical heating solutions available. Such modern devices include resistance or induction boilers, which encompass up to 5% of the electrical boiler market, or electromagnetic heating with heat recuperation. Electrical heating usually involves heat accumulation, which is why it is so important to fit every system with accumulation tanks, which can store the heat and release it as and when necessary. Tankless boilers fulfil the same function as gas heating boilers.

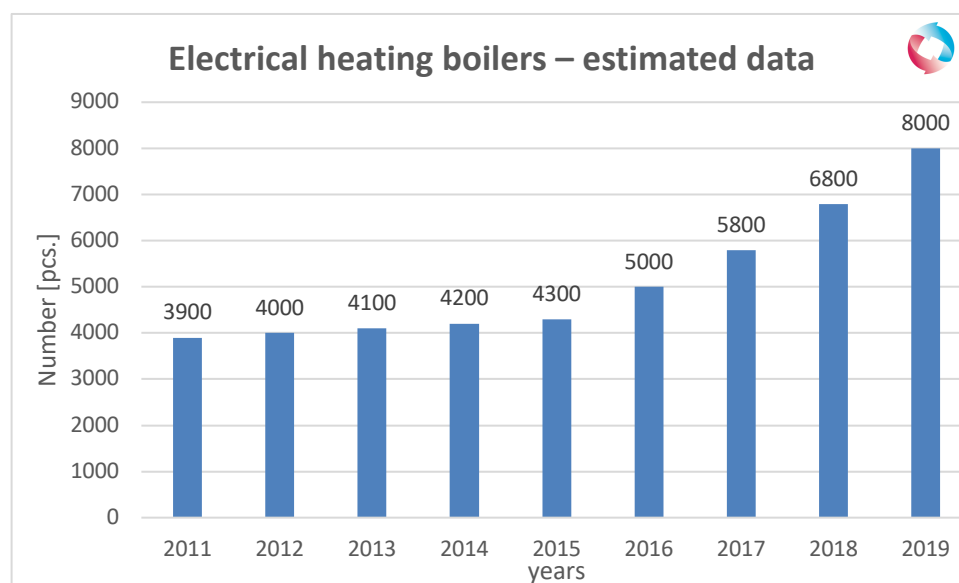


Fig. 33 Electrical heating boilers – estimated data for 2011 -2019 (Source: SPIUG study)

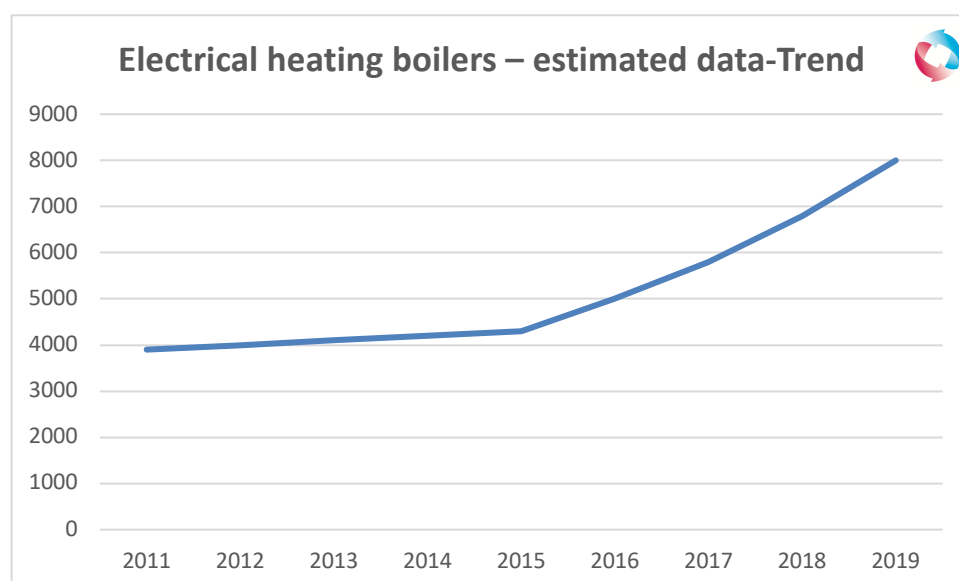


Fig. 34 Electrical heating boilers – estimated data for 2011 -2019 – Trend (Source: SPIUG study)



### 3.6 Solar collectors

In 2019 in the solar collector group a certain drop in the sales of these systems occurred which throughout the year came to 15% after a very good first half of the year when the sales increased twice compared to 2018. Despite the sales result in 2019, the sales in absolute numbers was still very high. This result can indicate a saturation of the tender market for this type of installations. The sales of the solar collectors in 2019 were the result of the commune tenders settled in 2018 and 2019. Most sales concerned flat collectors, while in the vacuum collector group, in the 4th quarter of 2019, there was a drop of about 66%. Such a result is the consequence of the market structure in this product group, based in more than 80% on tender-based investments. Programmes and tenders for solar collectors often take place in communes which already have past experiences with the installation of this type and are the result of the good opinions of the users of solar collector installations or their neighbours. Despite certain positive symptoms in retail, there is still no permanent base in this distribution segment which would guarantee market stability, at least to a certain extent. There are absolutely no promotional and information campaigns supporting this technology as a totally emission free, with low operating costs. For a long time there has been no education on the capabilities of solar collector systems and the borderline conditions of their providing free heat. The support programmes organized in the past had a negative effect of imprinting in the end users' minds that the solar collector installations are only profitable with subsidies from the support programmes, which is a great burden on the sales of this heating technology. The PV systems, installed strictly for supplying electrical heating devices, are becoming a certain competition. A large group of installers, who used to install solar collector systems, have moved on to install PV systems.

There are also more and more installations where heat coming from solar collectors is also used for heating purposes apart from the traditional preparation of hot utility water, although the percentage share of this sort of systems in the entire collector sales volume did not change. On one hand, the continuously high – despite the drop at the end of 2019 – result is certainly pleasing, but on the other, the sales structure, largely based on communal umbrella programmes for restricting low emissions, is worrying. This sort of market structure, based mostly on facility orders, causes an intense rivalry with a limited number of tenders, which causes aggressive activities of the suppliers, who, in order to reduce the price, decide to shorten the distribution chain. The market structure based solely on tenders does not guarantee stabilization, despite the actual results, which should be satisfactory. After a collapse in retail, there are some signs of revival in this distribution segment too, but the situation is still far from normal. There is still no comprehensive support programme for the development of this market segment. A certain chance is the 2020 inclusion of the solar collector systems in the group of heating devices, as part of the Clean Air programme conducted by the NFOŚiGW. In the solar collector segment, one can assume that the sales proportion in terms

of distribution channels is 80% for the communal investments and 20% via traditional distribution channels. In any case, it should be re-emphasized that there is still no stable market base in the form of retail sale via installation and heating wholesale outlets, addressed to individual customers. Recently, there has been an increase in the popularity of RES in heat engineering, combined with the use of heat storages. Perhaps, a certain solution could be a new support system for the solar collector systems, for investments in system heat and industry. Also, at the UE level, a new opening for solar collectors is being prepared, as an element of the heating systems, process heat and restoration of the PVT solutions – a hybrid collector, combining the properties of a thermal collector and a photovoltaic panel. Labelling for solar collectors, similar to other heating devices, is also being prepared.

	Glassless	Flat	Vacuum	Glass in total	TOTAL
<b>2019 – Surface of newly-installed collectors in 2018 (m2)</b>	0	257 200	5 800	263 000	263 000
<b>2018 – Surface of newly-installed collectors (m2)</b>	0	300 000	10 000	310 000	310 000
<b>Percentage change</b>	0	-14%	-42%	-15%	-15%
<b>Total surface of working collectors (m2) at the end of 2019</b>	0	2 324 900	496 400	2 821 300	2 821 300
<b>Total surface of working collectors (m2) at the end of 2018</b>	0	2 067 700	490 600	2 558 300	2 558 300

Table 3 Development of the solar collector market in Poland in 2019 by collector type (Source: SPIUG study)

The result achieved in 2019 still makes Poland one of the leading countries installing these systems in Europe, holding the second place after Germany, where in 2019 a bit over 500 thousand m2 of solar collectors were sold.

	Swimming pool water heating	HUW preparation	Combined HUW and CH systems	Large systems (50m <sup>2</sup> < X < 500 m <sup>2</sup> )	Very large systems (over 500m <sup>2</sup> )
<b>2019 – Surface of newly-installed collectors (%)</b>	2	74	9	13	2
<b>2018 – Surface of newly-installed collectors (%)</b>	2	72	11	13	2

Table 4 Development of the solar collector market in Poland in 2017 by system type in [%] of installed surface (Source: SPIUG study)

The estimates collected from the market concerning the percentage share of individual types of solar collector systems clearly show that there is no revolution in the approach to using solar collectors for heating in Poland, although the share of the systems supporting heating in buildings increased.

	<i>Residential housing – new buildings</i>	<i>Residential housing - mod- ernizations</i>	<b>Residential housing - to- tal</b>	<b>Uses in com- mercial build- ings</b>	<b>Others (indus- try, network heating, etc.)</b>
<b>2019 – Surface of newly-in- stalled collectors (%)</b>	20	60	80	15	5
<b>2018 – Surface of newly-in- stalled collectors (*)</b>	2	74	9	13	2

Table 5 Development of the solar collector market in Poland in 2017 by the customer class in [%] of installed surface (Source: SPIUG study)

In 2018, the location structure of newly-installed collectors changed as well. There is a visibly higher demand for solar systems in new buildings, as well as an increased share of the industry as the customer of solar collectors.

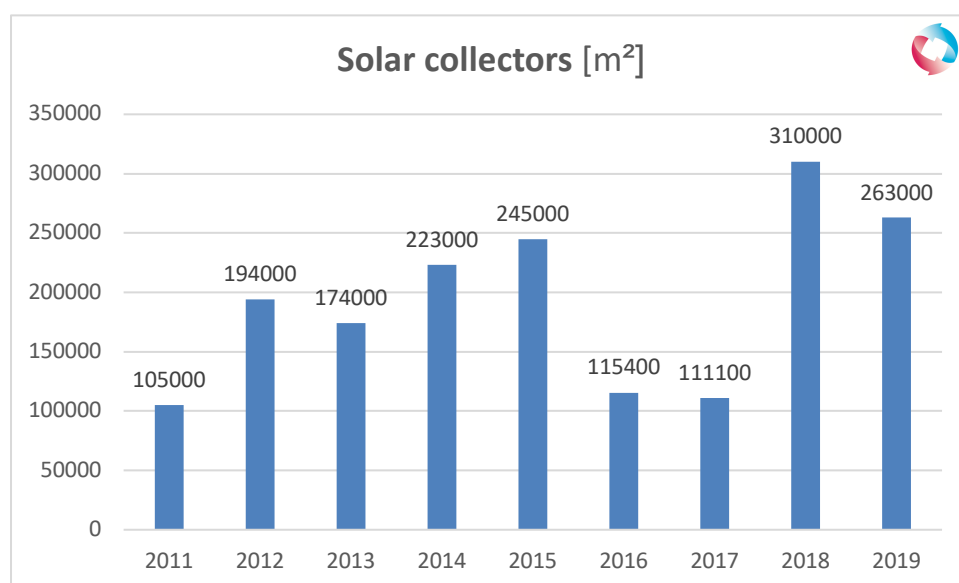


Fig. 35 Sales of solar collectors in total in 2014 – 2019 (Source: SPIUG study)

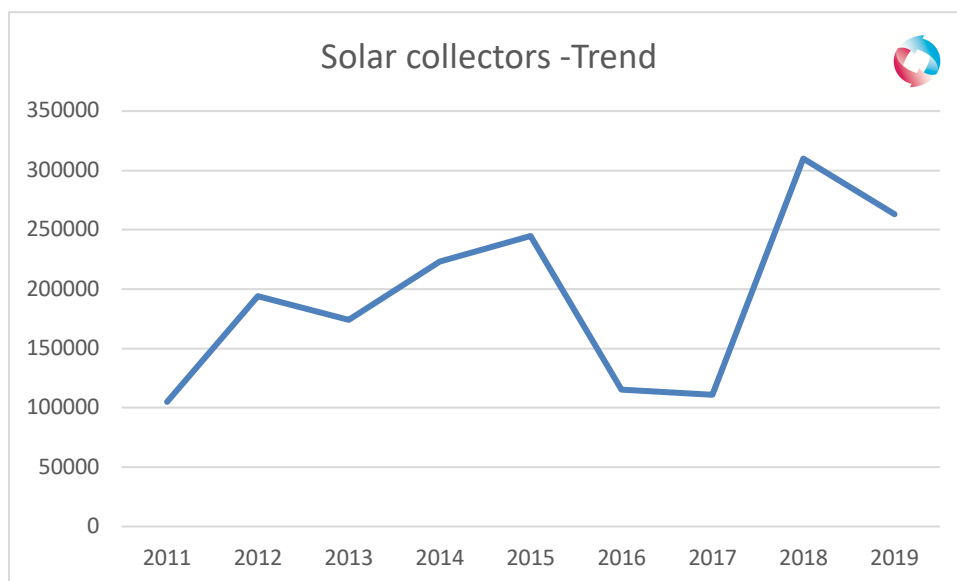


Fig. 36 Sales of solar collectors in total in 2014 – 2019 – trend (Source: SPIUG study)

### 3.7 Radiators and other installation elements

The year 2019 in the group of radiators was slightly worse than 2018, mainly due to the drop in sales in December 2019. For steel radiators, the drops came to 3-4%. One can observe a consistently consolidating trend for an increased market share of the surface heating, where the increases are still double-digit, over 25%. The increased popularity of the surface heating results, for instance, from the end customers' growing awareness and conviction regarding these technologies, which are now supplanting the radiator-based systems, mostly in single-family buildings.

For The other installation components such as distributors, connectors etc.. the sales increase came to 30%, with the sales similar to 2018 or, for certain elements, with a 5-10% drop. For other elements of the heating systems, the increases are estimated at 6-8%. Additionally, this can be supplemented with estimates concerning the size of the market for heating devices not included in the aforesaid statistics. The sales of tanks and buffers in 2019 can be estimated based on the data obtained from the market at 387,000 pieces, which means an increase of about 15% compared to the previous year. Whereas in 2019, there was a 75% rise in the sales of double-coil tanks, which reflects an increased demand for installations powered with solar collectors and hybrid systems in the first half of 2019. The increases could certainly have been higher but for the domestic manufactures' issues with processing capacity and deliveries to customers.

The market of the gas flow-through utility water heaters suffered a further drop in 2019, which has been a market trend for many quarters. It can be assumed that this technology of making hot utility water is more and more often supplanted by other methods of making the HUW. Devices of this sort are no longer installed in new buildings, only the replacement market exists. In 2019, the market in this product group shrunk by about 11%.

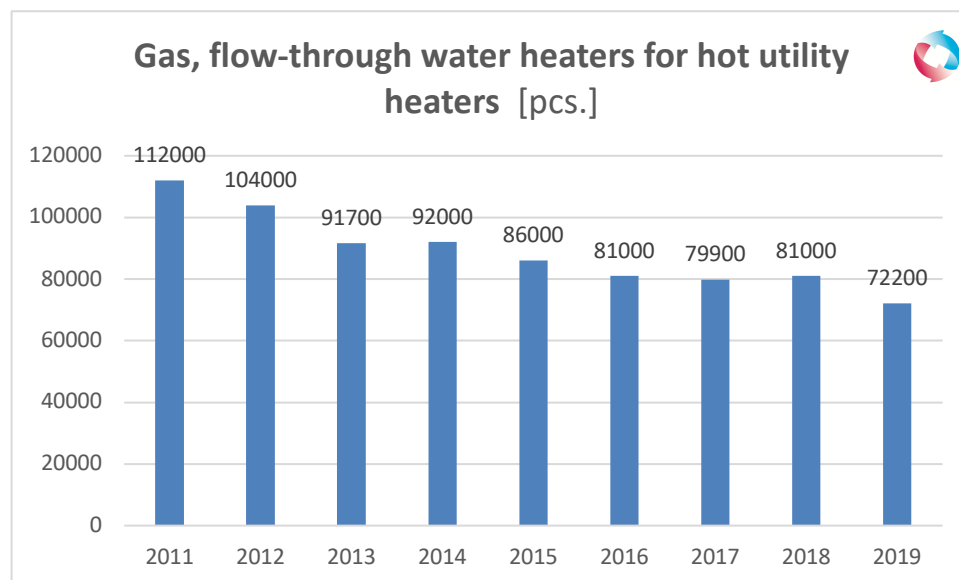


Fig. 37 Sales of gas, flow-through water heaters for hot utility water between 2014 and 2019 (Source: SPIUG study)

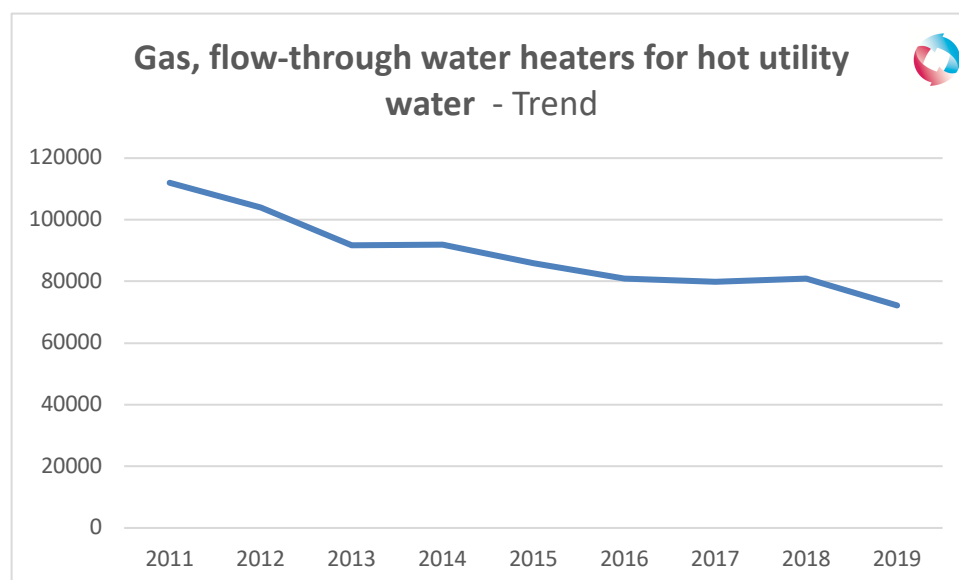


Fig. 38 Sales of gas, flow-through water heaters for hot utility water between 2014 and 2019 –trend (Source: SPIUG study)

Additionally, this can be supplemented with estimates concerning the size of the market for heating devices not included in the aforesaid statistics. Electric flow-through heaters: 2017 – 250.000 pcs, and in 2018 and 2019 the sales results were similar, reaching 255.000 pcs. (about 210,000 pcs. – low power heaters up to 6kW, about 45,000 pcs. - high power heater over 9kW).

## 4 Summary of the forecast for development of the installation and heating market in the future

Any attempt at forecasting the direction of the heating device sales and installation market development in 2020 and beyond is risky at least. Particularly now, with the coronavirus pandemics starting in Europe and on other continents in February 2020, following its onset in China, near the end of 2019. The heating device market development is dependent on two basic factors: the state policy and the purchasing power of the potential investors, being customers of the installation wholesale outlets. Currently, that is in April 2020, both these factors are highly interdependent, particularly when politicians and their pet experts of all sorts prophesize an economic crash. In 2017 and 2018, we dealt with high increases in the sales of heating devices, to such a degree that the plausibility of the data was questioned. In 2019, the growing curve was slightly flatter in the entire industry. In 2017 and 2018, the main driving force of the sales was the so-called replacement market. In a normal situation, i.e. without the negative impact of the coronavirus, we would have counted on this trend to continue in 2020 and in the following years. The replacement market potential in Poland is enormous. Currently, many countries, including Poland, are preparing solutions intended to restart the economy after the pandemics-related slowdown, and steps to take to revive the economy once the threat diminishes or stops

The current coronavirus pandemics have a considerable effect on the Polish and European economy. Preventive activities intended to reduce the virus threat restrict business activity, as the people have to stay at home, the foreigners who work in many sectors of the economy returned to their countries, and passenger traffic at the borders is restricted. In many cases, these actions made it necessary to close business activity in the service sector, and to restrict production due to the reduced workforce, broken supply chains and significant reduction of the capital flow in the consumption sphere. In this situation, the government has to give business a clear signal on how to manage in this difficult situation of the coronavirus pandemics and how to maintain, wherever possible, production, commercial and service activity, while maintaining the currently necessary safety procedures. The chaotic actions of various governments bring about projects of the so-called “shields”, intended to restart the economy after the anticipated crisis. Meanwhile, a lot depends on the actions taken right now. One of these elements can be activities in the construction and renovation industry. This sector may contribute to the economic revival, while at the same time achieving the long-term climatic goals for CO<sub>2</sub> reduction in buildings, limiting low emissions and increasing the energy safety of our country, which may also have a positive effect on the development of the heating and installation industry. One of these activities could be a programme incentivizing the Polish citizens to replace old and inefficient heating and cooling devices installed in their homes, e.g. via scrapping programmes, like in the case of old cars. Such an incentive scheme could also

include housing cooperatives which manage a lot of buildings equipped with energy-inefficient heating and cooling devices. From the perspective of every industry, during a crisis it is crucial to maintain programmes which stimulate the demand. One should remember that the installation and heating industry is not autonomous, and is an element of a self-regulating system, where the condition of other industries also affects this one. Therefore, apart from ensuring health safety of the society, is also important to ensure its economic safety, as the society is the end customer for the heating device market, and the financial condition of the society affects the condition of the installation and heating industry. The question is how long it will take us to adapt the economy to the new boundary conditions of the coronavirus pandemics and its consequences for business activity.

The current forecasts for the 2nd quarter of 2020 are rather pessimistic. The market is afraid of a smaller number of orders. It is already visible in a smaller number of dispatched sales offers, due to a reduced numbers of request for quotation. One may also expect more payment backlogs in the supply chain. SPIUG prepared safety procedures for the industry, in order to alleviate the potential negative consequences of the restrictions on business activity. Nevertheless, there are still fears of system renovations being suspended or delayed, both by individual and corporate customers, on account of the uncertainty concerning financial resources in the near future. Lay-offs, caused by reduced demand for devices and services, can be a certain barrier.

In an optimistic scenario, a certain bounce back can occur as soon as in the third quarter of 2020, but this depends on how other economy branches will react to the new situations. It is also important for the potential aid for entrepreneurs, granted via support programmes, to go to the business entities which actually need help, instead of to influential groups, using this opportunity to increase their capital, as was the case in the past. Some companies in the industry anticipate drops from more than ten to several dozen per cent, which will be impossible to make up for by the end of the year. Perhaps, these perturbations will transform the attitude towards the business, which is currently based on maximizing the profit, as according to the current business model, the profit itself is not enough. A several or even several dozen percent decrease is, in fact, a return to the level from several years ago, when the companies existed and carried on, so the great economic disaster prophesized by the media may be a slight exaggeration.

In the beginning of 2020, works on the new, improved shape of the „Clean Air” finished – a very valuable and necessary initiative, as reduction of low emissions from heating devices concerns mostly the less wealthy part of the society, where modernization of a working, but polluting, heating boiler would be a massive drain on the household budget. So far, the effectiveness of this programme has been disputable, and there was a period of waiting for a new, amended version of this support programme. Unfortunately, this had a negative impact on the sales of certain heating devices since the beginning of 2019. Therefore, the new,



improved version of this programme can have a very positive impact on the development of the heating devices based on emission-free technologies.

Also, since 2018, there has been a visible decrease in the growth dynamics of the residential construction, which was also visible in 2019, which is the main consumer of heating devices and systems. In 2019, the share of individual construction started growing – a traditional consumer of individual heating devices in all the categories, i.e. commissioned apartments, building permits or reports, as well as commenced constructions. This situation will certainly affect the sales of individual heating devices in 2020 and beyond, unless a deeper economic crisis occurs. Therefore, the conditions created on the replacement market as part of preventing low emissions will be crucial for the growing sales of the heating devices in the near future. One may assume that the results in 2020 will not be as positive, due to the pandemic situation, but everything can change if the boundary conditions change. The market change tendencies from the preceding years, occurring in individual product groups, should be continued. The development of energy-efficient construction and implementation of the building energy efficiency requirements should have an increasing effect on the selection of the heating devices. A smaller demand for heat thanks to elimination of losses via building partition and recuperation of heat from the ventilation increases the demand for devices with lower power, which will translate into lower operating costs, which may be important during an economic impairment of the society. Also, the growing awareness of storing heat generated in excess in favourable conditions by the RES may increase the demand for hot water tanks larger than those used conventionally at the time, and more extensive use of solar collectors as heat source. The industry has high hopes of commencing works on the RES heat act, which is a highly necessary element of developing the heat engineering in Poland.

One may certainly assume double-digit increases in the sales of heat pumps, mostly for new houses due to limitations in the systems and locations of modernized buildings. Of course, in many of the modernized structures it is entirely possible to install heat pumps, but this often requires more work and materials, as well as deeper modifications. Nonetheless, the current lack of any spectacular support programmes for the heat pumps is actually an advantage for this product group, because the market has not been spoiled yet and is developing naturally, as opposed to the situation with solar collectors. Actually, every heating technology and every type of heating device can be successfully used and work well, as long as such a device is correctly selected for the given building and local conditions. Nonetheless, it is certain that the future will bring an increasingly dynamic development of the RES-based heating technologies. In Poland, a certain opportunity for the heating device market is promotion of hybrid systems, combining heat pumps with home PV systems in low-energy houses, as well as solar collectors combined with various heating devices. Thanks to this solution, the investor actually receives heat from the RES, as the electricity powering the heat pump comes from the RES, and a certain effect of energy independence, which is starting to be increasingly popular, also in Poland.

Similar causes can be attributed to the growing interest in modern, electric boilers. With the growing energy efficiency of the buildings and low investment costs, the electrical heating is starting to look more and more profitable. When added to an independent power source in the form of a PV system or wind turbines, this means a fully emission-free heat source. Therefore, in 2020 and in the following years we should expect a further, stable increase in the popularity of this heating type.

In 2019, there was a certain drop in the sales of solar collectors in Poland, coming to over 260,000 m<sup>2</sup>. This result can be surprising, taking into account the very small presence of solar collectors in the installation and heating wholesale outlets. The cause is simple. In Poland, solar collectors are sold almost exclusively via communal projects, which are provided with this solution by specialist installation companies. It is hard to expect this result to be repeated in 2020. A number of projects and tenders has already been completed. Currently, they are still carried out in the EU financial perspective by 2020. Once the projects are over, one can assume another slump in the sales of solar collectors after 2020, unless the manufacturers of these devices reach an agreement with each regarding a promotion of these devices, and with installation wholesale outlets, regarding the distribution method. A certain opportunity for this type of installations is to use the collectors for heating as part of the Clean Air programme, and the need for modernization of network heat, based on the RES.

In the case of solid fuel boilers, the situation is more dynamic. After the amendment to the solid fuel boilers, implemented in March 2019, the manufacturers and wholesalers have been reporting a significant drop in the sales of manually-fed boilers. For a while, this drop has been signalled along with an increase in the popularity of automatically-fed boilers. The downward trend applies particularly to boilers fired with coal and its derivatives. This trend will certainly continue in 2020, particularly as boilers with automatic feeders can currently be sold and installed, and in the case of manually-fed boilers – only those with a buffer, which increases the installation costs. The year 2019 saw a practical withdrawal of coal as fuel in households, in favour of biomass boilers. Currently, one can purchase good quality pellet and woodchips boilers, as well as wood-gasifying ones, which, as long as good-quality fuel is provided, can effectively reduce the already-legendary low emissions of this type of devices. A certain market niche is straw-fired boilers, which, despite their specific construction, still find buyers on farmsteads which produce a lot of straw. Moving to biomass as the only solid fuel used in the future takes place consistently and faster than assumed earlier.

In the recent years, the most spectacular sales increases for heating devices applied to gas boilers. Burning gas in condensing boilers produces steam and carbon dioxide. Of course, the latter is the cause of a certain smear campaign against gas, as one of the causes of the climatic changes and global warming. The impact of several million gas boilers on the climatic changes on Earth is disputable. It is a fact that burning gas produces almost zero suspended dust, which is why gas boilers are so willingly used to replace the old devices wherever there are no special requirements for changing the system, and the effect of an improved air quality

is desired immediately. Since 2016, the market has been dominated by condensing boilers, which are currently the largest group of heating devices sold in Poland, which will certainly be the case in 2020. There is a certain market niche of conventional boilers replaced wherever technical reasons preclude a trouble-free installation of condensing boilers. This small market niche will most likely survive in 2020, despite high drops in 2019, but one can assume that in time this product group will go extinct on its own. Also, for several years, there has been a tendency to depart from suspended boilers in favour of suspended boiler cascades. This process is slow, but the tendency has been present for several years and will probably continue in 2020. One can also see significant upward trends for surface heating. The radiator market appears to be stable with a small decrease, despite the number of investments completed in the scope of enclosed structures. This is another sign of a slow evolution of one heating technology at the expense of another. The current trend towards better thermal insulation and limiting heat losses accelerates the market development towards recuperation systems. And this trend will certainly continue in the years to come. One should remember that surface heating, similarly to heat pumps, are currently chosen mostly for new buildings. Even taking into account the lower dynamics in the enclosed structure industry, mostly residential, as was visible last year, it should not affect this market segment. To sum up: the year 2020 in the installation and heating industry is a great unknown, due to the consequences of the coronavirus pandemics. Much depends on the policy of the central and UE authorities, as long as they are consistent in their activities intended to restrict low emissions and support the economy. The expected market slowdown in the 2nd quarter of 2020 will certainly affect the overall results of 2020, as well as in the following year, but one should hope that maybe the crisis threat will accelerate the decision to change the heat supply structure, which was postponed year by year. Therefore, it is difficult to predict the development of the heating device market in the near future, as it will depend on numerous factors, both domestic and international.

Prepared and compiled by:

Janusz Starościk

Member of the Pool of Experts Switzerland Global Enterprise

Warsaw, 18 April 2020