

Context

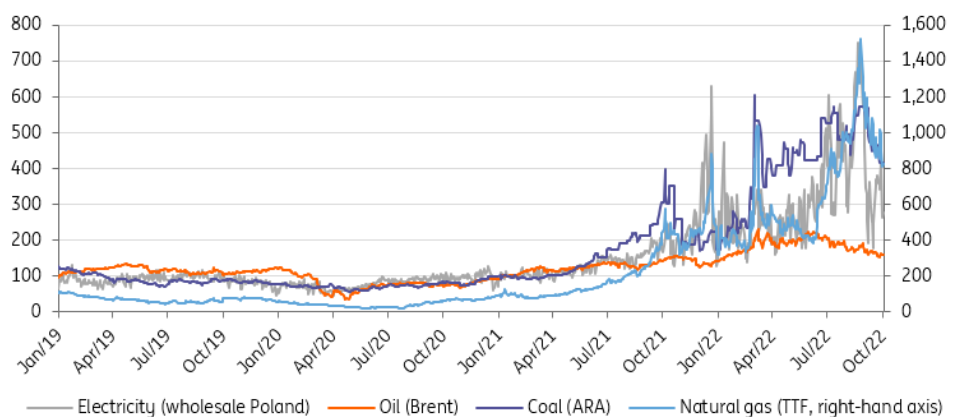
Energy Shock 2022: On the back of an economic rebound following the pandemic in 2021 and thereafter due to Russia's invasion of Ukraine in 2022, the prices of energy carriers in Europe have remained in a clear upward trend and fluctuated strongly. They shot up in the summer of 2022 following the initial threat and again after Nord Stream 1 completely halted gas supplies to Europe. By the end of September, daily Russian gas imports to Europe were about three-quarters lower year-on-year.

Gazprom manipulation from mid-2021: Prices of energy carriers have been on an upward trend since mid-2021. Russia's gas manipulations led to a jump in prices later that year, with energy prices rising further after the outbreak of war in Ukraine.

Local maximum in mid-August: In mid-August 2022, energy prices were many times higher than the average in January 2021. Prices for natural gas rose more than 15 times, electricity (wholesale market) by 7 times, coal by almost 5 times, and oil almost twice. The explosion in gas prices was due to volume restrictions imposed by Gazprom. Shipments through Nord Stream 1 fell to 40% in June 2022, then to 20% in July-August preceding the complete suspension of supplies through this pipeline in early September.

September correction: When the European Commission and EU member states responded to Russia's gas manipulation, prices fell sharply. The correction in oil prices was largely due to recession fears in the global economy and also driven partly by monetary tightening. In early October, following fluctuations due to the Nord Stream leaks and the EU Council's decision to control rising energy costs, price increases were eight times higher for natural gas, almost three times for electricity, four times for coal and 1.5 times for oil.

Prices of energy carriers: January 2021 =100



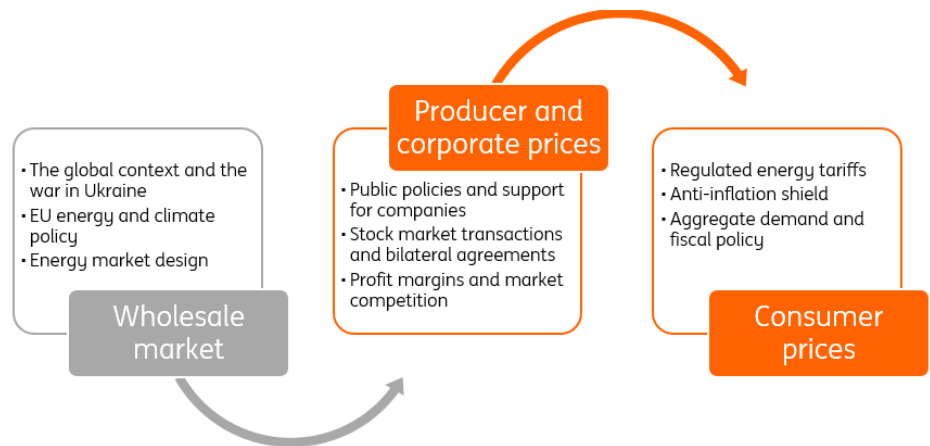
Source: Bloomberg

Energy price shock for producers in 2022

Translation of wholesale market prices into Producer Price Index (PPI) and Consumer Price Index (CPI) prices: Producer prices typically respond quickly to changes in wholesale energy market prices, which are driven by global developments. In Europe, they are largely impacted by the EU's energy and climate policy and the EU's energy market design. However, for individual companies, price changes are often indexed to market prices and occur with some delay. While stock market transactions are transparent, we have limited insights into bilateral contracts between energy utilities and individual manufacturers. Finally, the transmission of shifts in wholesale and producer prices on consumer prices in Poland is constrained by the Energy Regulatory

Office, which is responsible for electricity and gas tariffs to households, as well as government decisions on taxes and benefits.

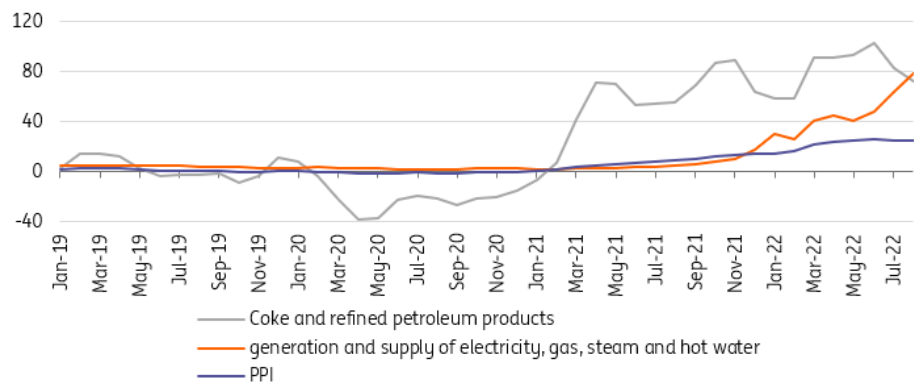
Energy prices - what and what does it depend on?



Source: ING

Post-recession rebound 2021 and rising oil prices: The upward pressure on industrial output in 2021 was a rebound from the 2020 pandemic recession built up quickly and steadily. In January 2021, PPI growth was 1% YoY, and by December was already at 14.4%, largely driven by price increases in the coke and refined petroleum products. While January 2021 saw a 6.9% YoY decline in this category, while December 2021 price growth was 64.3% YoY. This category accounts for 5.2% of the PPI index basket in 2022.

Producer price index (PPI) and its energy categories (%ch YoY)

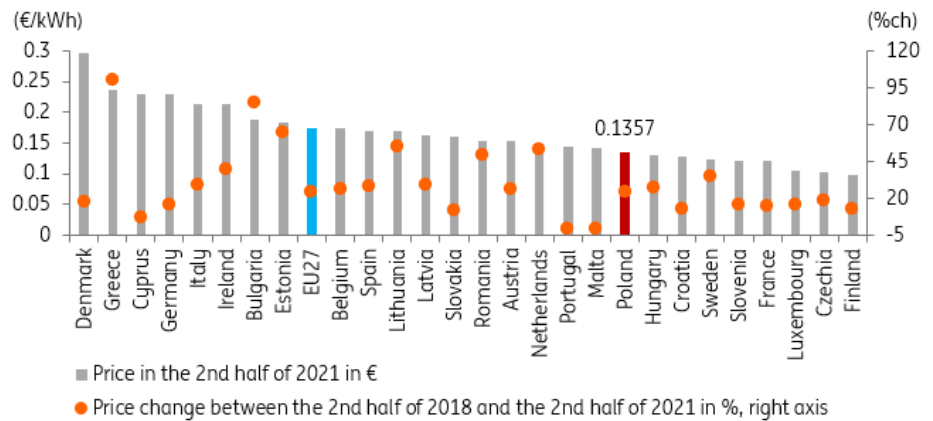


Source: CSO

A rapid build-up of cost pressures in 2022 and increases in gas and electricity prices: Throughout 2022, prices in the generation and supply of electricity, gas, steam, and hot water increased systematically. Price increases in this category reached 30% YoY in January 2022 and accelerated to nearly 80% YoY in August. This category accounts for 7.5% of the PPI basket in 2022. Increases in energy and other categories moved the PPI index from 14.8% YoY in January to 25.5% in August 2022.

At the starting point (before the energy shock), energy prices for companies in Poland were generally close to the EU average: According to Eurostat data, electricity prices for companies (including taxes) in Poland were about a quarter lower than the EU27 average in the second half of 2021. They have increased by a total of about 25% over the past four years (between the second half of 2021 and of 2018). The price of natural gas for companies saw a total increase of 30% in four years, close to the EU average.

Electricity prices for companies in the EU in second half of 2021

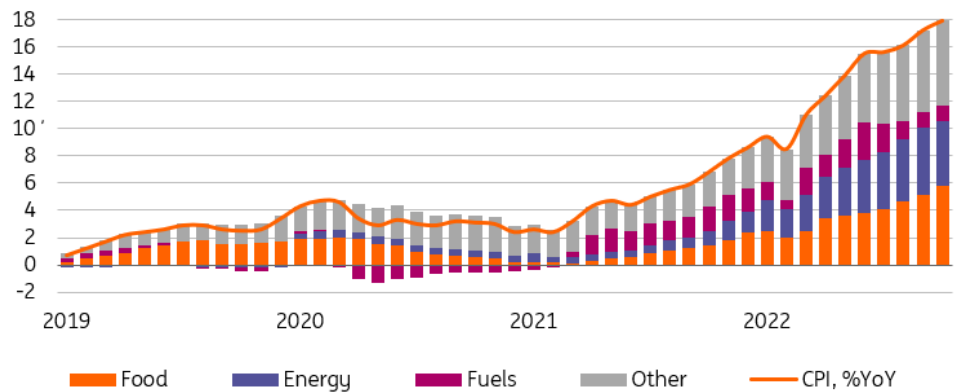


Source: Eurostat

Energy price shock for consumers

Energy prices are driving up CPI inflation: The increase in energy carrier prices in 2022 strongly impacted the acceleration of consumer inflation. In August, the contribution of fuels in transportation and home energy carriers was 6.0 percentage points, with CPI inflation at 17.2% YoY. Nevertheless, the initial impetus for higher energy prices was also translated through so-called second-round effects on price increases for food and other goods and services in the core inflation basket.

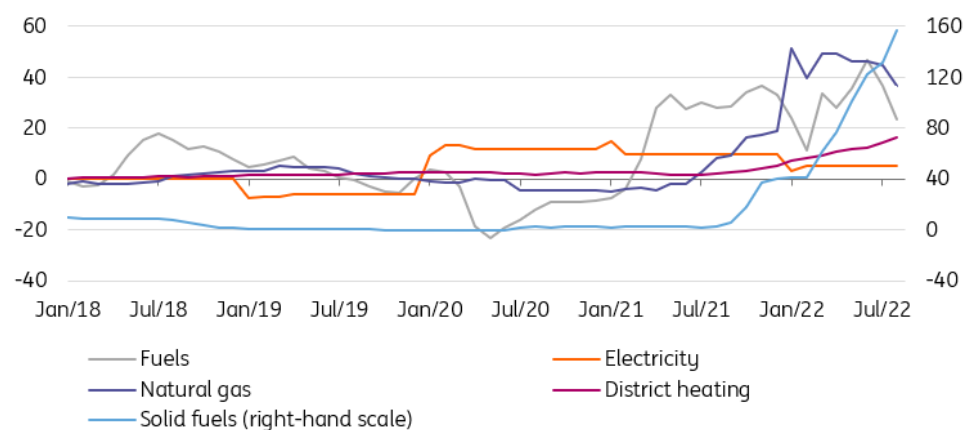
CPI inflation and its sources (% change YoY)



Source: CSO, calculations ING

It's not only energy responsible for the acceleration of inflation: In our view, the high price increase is a combination of cost inflation (pandemic, war in Ukraine) and demand inflation (consumption boom for a few years, tight labour market). These factors will continue to bring about high inflation as a result of the ongoing energy crisis. Core inflation will rise with a peak in early 2023 because of the delayed pass-through of producer price increases to retail prices. We forecast double-digit CPI price growth in 2023-24.

The anti-inflation shield and energy prices for households: Since the beginning of 2022, the government has actively used instruments to mitigate energy price increases by introducing indirect tax cuts as part of the anti-inflation shield. These solutions have now been extended until the end of 2022. Thanks to the reduction of the VAT rate on electricity (from 23% to 8%) in January 2022, the increase in this component of the CPI was about 5% rather than 24%, which would have otherwise been the result of the Energy Regulatory Office's hike in tariffs for households.

Prices of energy carriers in Poland - components of the CPI index (%ch YoY)

Source: CSO

Increases despite the anti-inflation shield: While the government has announced a freeze on the price of electricity, energy and gas for early 2023, consumers are still expected to face solid fuel (coal) price increases in autumn. Upward pressure on the price of food and other goods and services (second-round effects) will also persist.

Concerns about energy shortages in the EU and Poland

EU response to Russian invasion of Ukraine: In response to the Russian invasion of Ukraine, the EU has introduced economic sanctions on Russia, including a full coal embargo (since August), an oil embargo (with exceptions) and a two-thirds reduction in gas imports by the end of the year.

Substitution of Russian gas in the EU: EU measures (more LNG and network gas from other locations, fuel substitution, and energy efficiency) leave a gap of around 20bcm. The EC has proposed voluntary (and forced if necessary) consumption cuts of 15% in EU countries. This is roughly equivalent to the additional gas consumption that occurs during a cold winter in Europe.

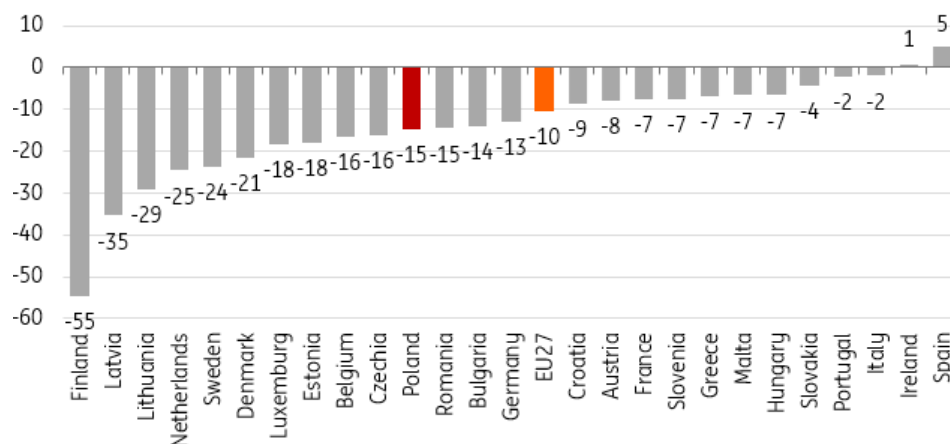
Re-Power EU: EU policy, in particular the [May 2022 Re-Power EU program](#), has remained consistent with the long-term goal of climate neutrality and the Green Deal strategy. In addition to diversifying gas supplies, it envisions accelerating the low-carbon transition, mainly through support for RES and energy efficiency.

EU shields package from high energy prices: On 14 September, EC President Ursula von der Leyen announced the following:

- A target to reduce gas and electricity consumption by 10% and by 5% during the peak winter season to a 5-year average
- A tax on excess profits of energy producers
- A €180/MWh price cap on low-cost technologies (mainly nuclear, lignite and RES) for the wholesale market in all segments and bilateral contracts
- A €3 million investment in hydrogen

The gas shock has already caused a significant reduction in natural gas consumption in EU countries, although market prices have not been passed on to the end user. In January-July 2022, gas consumption in the EU was 10% and in Poland 15% YoY lower than in 2021.

Natural gas consumption in January-July 2022 (%YoY)



Source: ING based on Eurostat

In the context of deep declines in gas consumption this year, the mechanism proposed by the EC in July to reduce consumption by 15% by member countries does not seem to be a major challenge for Poland. Twelve EU countries, including Poland, have already reduced gas consumption by 15% YoY in January-July 2022.

High storage fills, the launch of the Baltic Pipe pipeline from late September and new interconnectors with Lithuania and Slovakia reduce the risk of a gas shortage in Poland in the upcoming heating season. High prices are being boosted by negative events related to the war in Ukraine, including sabotage at Nord Stream.

Record high prices encourage gas substitution and directly affect the decline in demand and production in gas-intensive sectors. Households and the service sector are generally protected; hence price increases are most severe for producers of the chemical (including fertilisers), mineral and metal smelting industries.

Quantitative survey among small & medium-sized companies in Poland

The quantitative survey was conducted by GfK Polonia on behalf of ING Bank Śląski in August 2022, using the Computer Assisted Telephone Interviewing (CATI) method. The sample consisted of 300 small and medium enterprises (SME).

Research questions

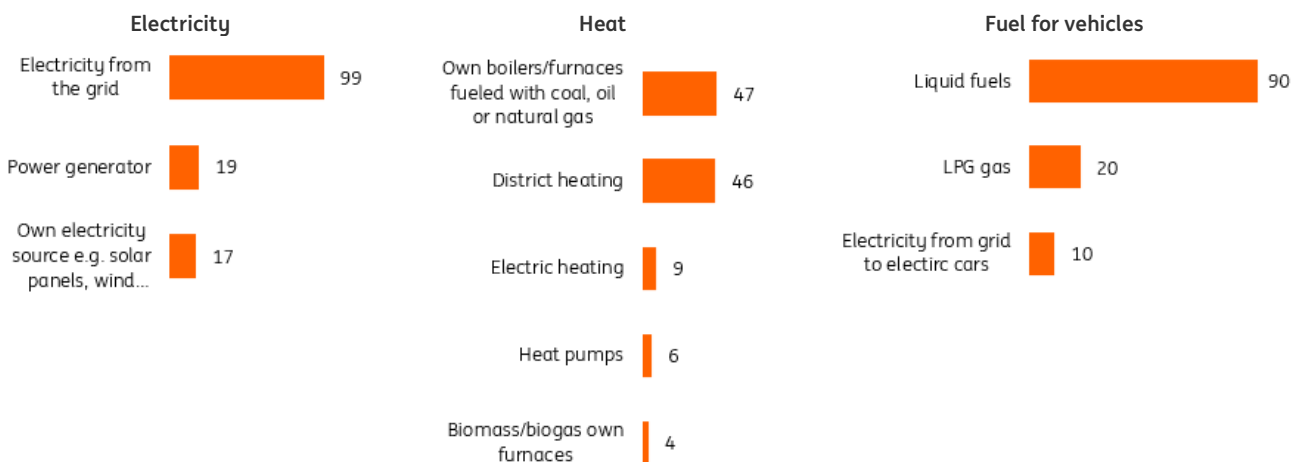
In the survey, we searched for responses to the following questions:

- 1) How are companies coping in times of an energy shock, mainly for natural gas? How does expensive energy affect their business? Do companies have problems with access to energy? Are they worried about energy access problems in the coming year?
- 2) How have they responded so far? What are their plans for investing in energy-efficient technologies or perhaps their own sources like photovoltaics, windmill, heat pump, and energy storage?
- 3) Does the anti-inflation shield (including the reduction of VAT and excise taxes on energy) help them?
- 4) Given the context of the current climate crisis, do they feel pressure/identify a need to switch to clean energy in the near future?
- 5) Are they aware of EU climate policy and opportunities to support clean energy and energy efficiency?

Types of energy used

One in five companies has its own power generator, and 17% of companies say they have their own sources of electricity. Own boilers/furnaces as heat sources are used by almost half of the companies - that's as often as heat from the grid. 10% of companies declare using electric-powered vehicles, although this result is likely inflated. According to local automotive associations PZPM and PSPA there are only about 50,000 pure electric and plug-in hybrid cars in Poland. Natural gas is twice as popular as electricity in company vehicles.

Types of energy used in SMEs

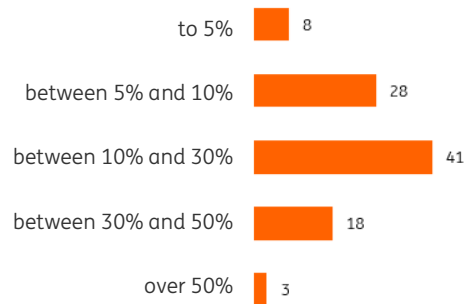


Question asked: What sources of electricity and heat and fuel does your company use?
Source: GfK Polonia, ING

Share of energy in total costs

About two-thirds of all companies indicate a share of energy (all carriers, including transport fuels) making up more than 10% in company costs. Larger companies declare a larger share of energy in their costs, most often between 10% and 30% (for more than half of the companies over PLN 10 million in turnover last year). About half of the companies with higher turnover are industrial companies, which are generally more energy-intensive than the service or construction industries.

Average share of energy costs in the company's costs



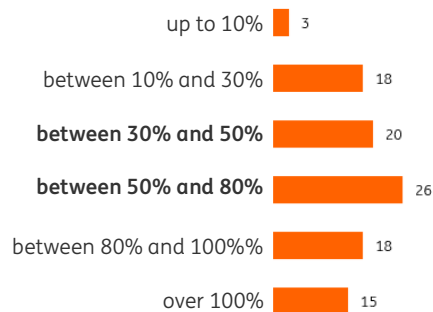
Question asked: How much do the costs of electricity, heat and fuels (including those used for transportation) currently account for in your company's total operating costs? Again, we ask for a rough estimate.

Source: GfK Polonia, ING

Perception of the energy situation

Companies perceive energy and fuel price increases differently. Most (26%) believe that prices have already risen between 50% and 80%.

Perception of past increases in fuel and energy costs - by how much? (%)

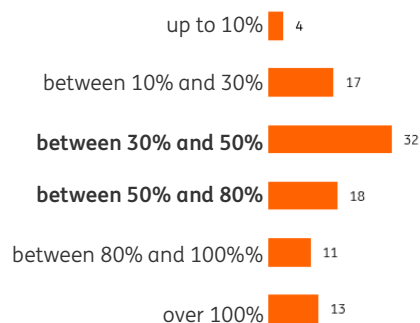


Question asked: How much do the costs of electricity, heat and fuels (including those used for transportation) currently account for in your company's total operating costs? Again, we ask for a rough estimate.

Source: GfK Polonia, ING

Expectations for future increases are slightly more consistent, with 32% of companies predicting that prices will still rise between 30% and 50% further.

Predicting further increases in fuel and energy costs - by how much? (%)

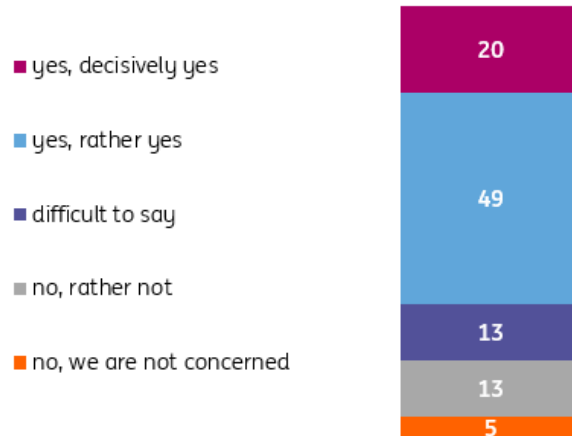


Question asked: By how much more do you think energy and fuel prices may rise in the next 12 months?

Source: GfK Polonia, ING

The vast majority of companies (nearly 70%) are concerned about problems with access to energy and fuels.

Concerns about access to fuel and energy



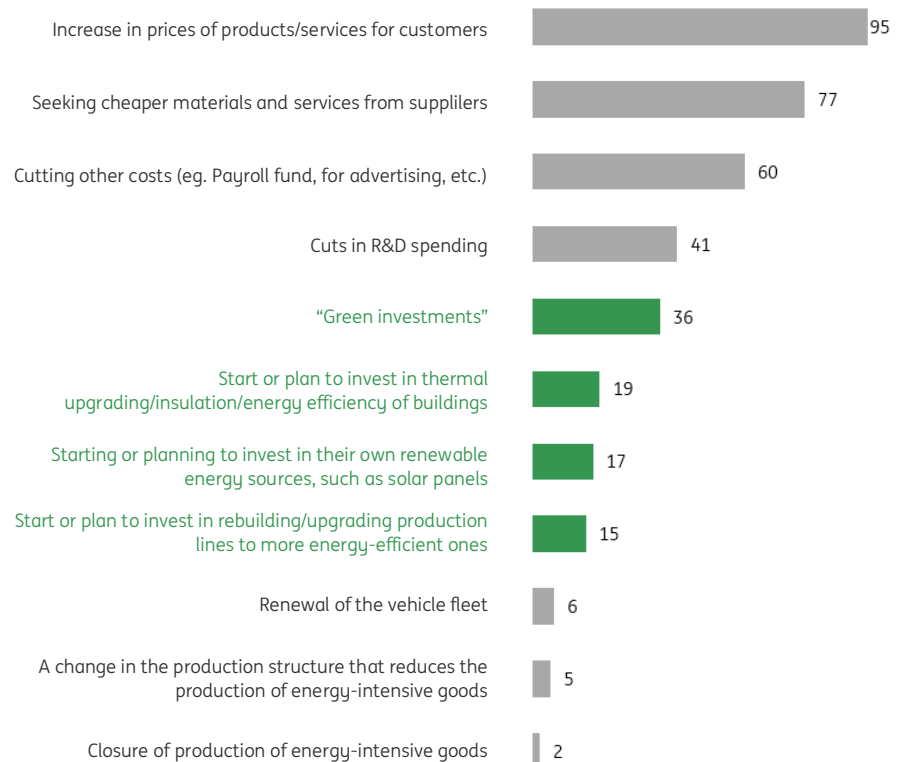
Question asked: Are you concerned about future problems with access to energy and fuels, such as supply disruptions or rationing of such goods, e.g., after the complete suspension of Russian gas supplies to Western Europe?

Source: GfK Polonia, ING

Responses to increased energy and fuel costs

Almost all companies have reacted to rising energy and fuel costs by increasing the price of products or services. Only 5% have avoided this so far. The second most common way to cope with the situation is looking for cheaper materials and suppliers (recorded by 77% of companies), followed by cutting other costs (60%) and halting R&D investments (41%). More than one in three companies intend to invest in solutions that will help save energy in the future.

Responses to increased energy and fuel costs



Question asked: How has your company responded in the past year to rising business costs caused by rising energy/fuel prices?

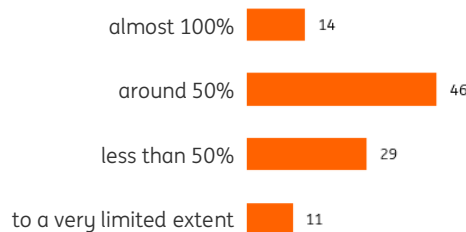
Source: GfK Polonia, ING

Offsetting higher energy costs

Given that around 95% of companies decided to increase the prices of their products or services, we asked a follow-up question on the extent to which they compensated for higher energy prices. Compensating for the increase in costs by passing them on to consumers appears to be an easier option than the search for cheaper production substitutes.

When raising prices of own products or services, most companies tried to compensate themselves for at least half of the higher energy costs (as noted by 60% of companies that have raised prices). On the other hand, this means that still there is a large room for price adjustments in the future.

To what extent did the companies compensate for higher energy prices by price hikes of own products or services?

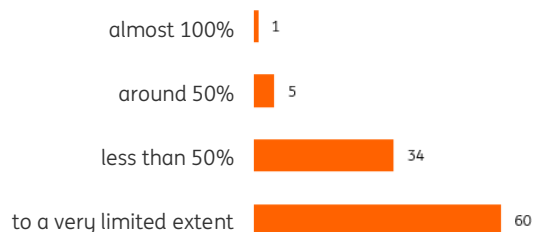


Question asked: You said that your company's response to energy/fuel price increases has been to seek **cheaper materials and services from suppliers**. To what extent does your company offset higher energy and fuel costs with lower prices from its suppliers?

Source: GfK Polonia, ING

We also asked a similar question about offsetting higher energy costs to 77% of entrepreneurs looking for cheaper materials and services. Around 60% of companies that take such steps could only compensate themselves for energy price increases "to a very small extent," and 34% of companies for less than half. Limited substitution possibilities could result from supply constraints due to disruptions in global value chains amid the pandemic.

To what extent did the compensate for higher energy prices by looking for cheaper materials and services



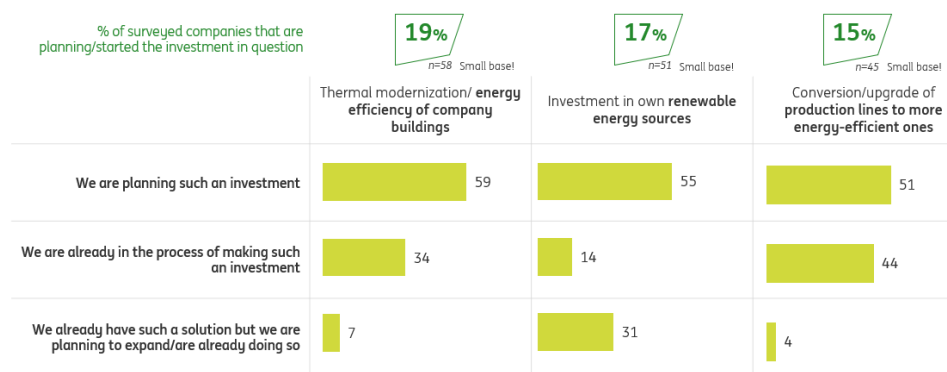
Question asked: You said that your company's response to energy/fuel price increases was to **raise the price of products/services to consumers**. To what extent does your company compensate for higher energy and fuel costs by passing them on to end users?

Source: GfK Polonia, ING

Green investments

For most companies interested in green investments, solutions aimed at saving energy or building their own RES installations are only in the planning stages. A relatively large number of companies are also in the process of modernising production lines or thermal modernisation of buildings. While investment in renewable energy sources has slowed down (with few currently in the pipeline), one in three companies interested in such investments have found a solution, appreciated its advantages and plans to expand investments in their own RES.

Companies conducting green investments



Questions asked: You mentioned in a previous question that you are planning or have even started investments in your **own renewable energy sources**. At what stage are these investments? You mentioned in one of the previous questions that you are planning or have even started investments in **converting/upgrading production lines to more energy-efficient ones**. At what stage are these investments? You mentioned in one of the previous questions that you are planning or have even started investments in **making your company's buildings thermal/energy efficient**. At what stage are these investments?

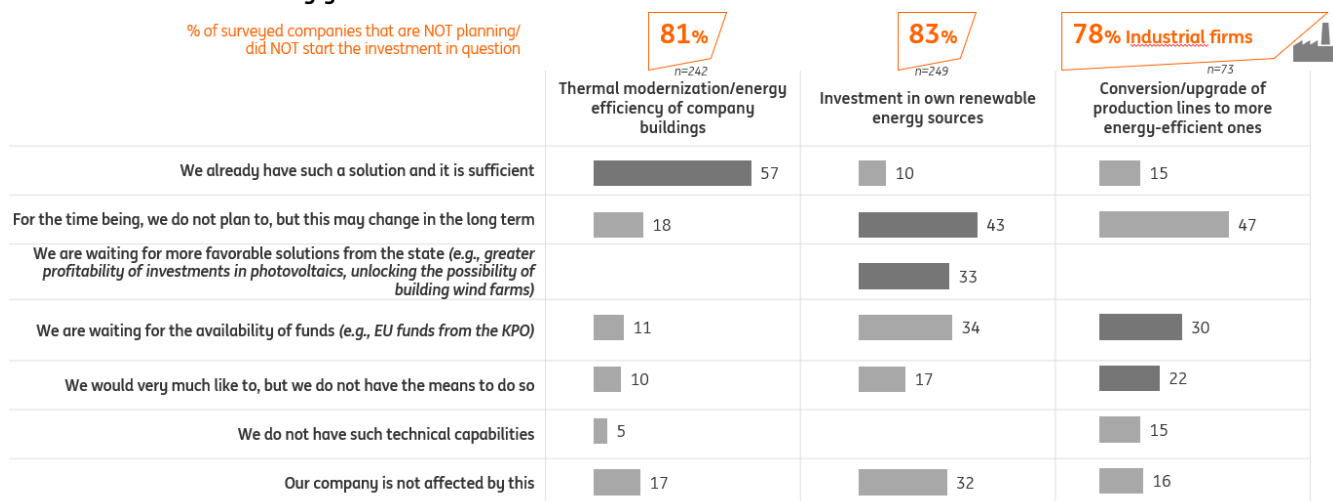
Source: GfK Polonia, ING

Reasons for lack of green investments

More than half of the companies that do not plan to invest in thermal modernisation have taken care of this beforehand. One in three companies that are not in the process of investing in their own energy sources are waiting for the availability of funds for this purpose. They also expect better solutions at the state level (e.g., the possibility of building windmills, increasing the profitability of setting up PV panels).

However, more than 40% of companies currently not investing in renewable energy sources say they may consider doing so in the future. More than half of all industrial companies would be ready to modernise production lines if there were funds to do so, with 30% currently waiting for funding from EU sources (e.g., from the National Recovery Fund).

Reasons for not undertaking green investments



Questions asked: You mentioned in a previous question that you have NOT started and do NOT plan to invest in your own **renewable energy sources**. Can we ask why? Possible multiple answers. You mentioned in a previous question that you have NOT started and do NOT plan to invest in **converting/upgrading production lines to more energy efficient ones**. Can we ask about the reasons? Possible multiple answers. You mentioned in one of the previous questions that you have NOT started and do NOT plan to invest in **making your company's buildings thermal/energy efficient**. Can we ask about the reasons? Possible multiple answers.

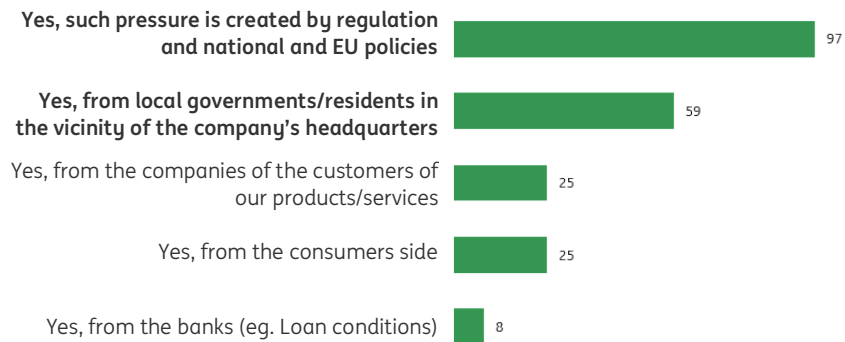
Source: GfK Polonia, ING

Pressure to use energy-efficient and low-carbon solutions

In the context of the climate crisis, we also asked companies about external pressure to go green. Generally, the pressure felt by companies to use energy-saving and low-

carbon solutions is low, with just one in five companies noting its effect. Greater pressure is felt by larger companies and industrial firms. This stems mainly from national and EU regulations and policies, and secondarily from local governments and residents in the vicinity of the company's headquarters. Only one in four of those perceiving pressure see it from contractors; one in four from consumers; and one in ten from banks. Pressure to act in response to the climate crisis appears to be lower in the SME sector than in large companies. This conclusion is supported by our other research at both global and national levels.

Sources of “green” pressure among companies seeing such a pressure (20% of all responses)



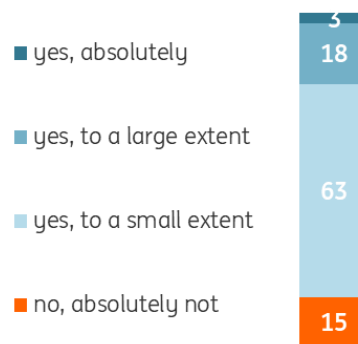
Question asked: Does your company feel pressure or encouragement from others around the company (other companies, banks, local governments, residents in the vicinity of the company's headquarters, consumers, etc.) to adopt energy-saving or low-carbon solutions? Many answers are possible. In what way?

Source: GfK Polonia, ING

External assistance and government's anti-inflation shield

The vast majority of respondents say the anti-inflation shield is helpful. The shield comprised temporary cuts in indirect taxes, addressed mainly to households. However, most companies (63%) find the anti-inflation shield helps only slightly, and only 15% feel that it does not help at all.

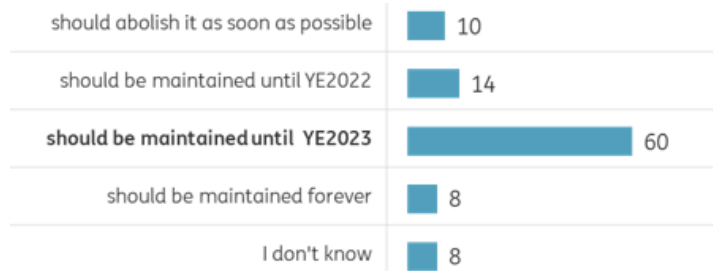
Does the anti-inflation shield help your company?



Question asked: Does the anti-inflation shield (reduction of VAT and excise taxes on fuel/energy) help your company?

Source: GfK Polonia, ING

Until when should the government maintain the shield?

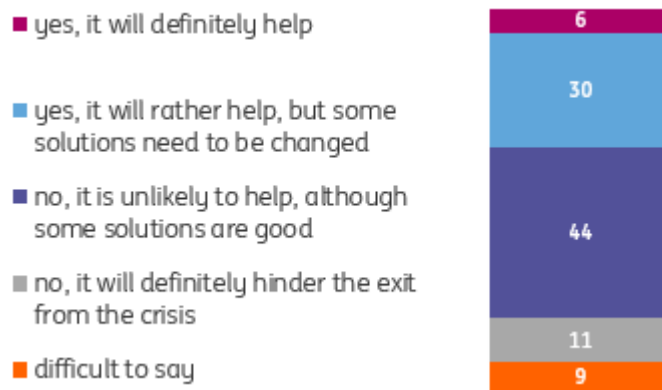


Question asked: Until when do you think the government should maintain the anti-inflation shield?
Source: GfK Polonia, ING

External assistance and EU policy to combat the energy crisis

Most companies are quite sceptical about the effectiveness of EU policies in dealing with the energy crisis. 44% of companies do not believe that EU policies can contain the crisis but do note the potential for good solutions within them. One in ten companies are strongly critical and see EU policies as a pause button rather than a firm solution for dealing with the crisis. Slightly rarer are the companies that view EU policies more positively and with more hope (a total of 36%, of which 6% believe in EU policies without reservations. The remaining 30%, however, would make changes).

Could EU policies help in the energy crisis?



Question asked: In your opinion, will the European Union's policies (diversification of gas suppliers, renewable energy, energy efficiency, high prices of CO2 emission allowances) help or not in dealing with the energy crisis?
Source: GfK Polonia, ING

Main conclusions of the SME survey

This section summarises the responses to the key research questions of our survey.

- 1) How are companies coping in times of an energy shock, mainly gas? How does expensive energy affect their business? Do companies have problems with access to energy? Are they worried about energy access problems in the coming year?**
 - SMEs have been hit hard by the war in Ukraine due to higher energy prices, which account for a more significant share of total costs.
 - 70% of companies are concerned about access to energy in the upcoming heating season.
 - Companies have generally only partially passed on higher energy costs to buyers and are actively reducing other expenses, including development.
- 2) How have they responded so far, and what are their plans regarding energy-saving technologies or perhaps their own sources like photovoltaics, windmill, heat pump, and energy storage?**
 - Companies expect further increases in energy prices for the coming year, although slightly lower than in the past 12 months.
 - High energy prices are increasing interest from SMEs in investments in energy efficiency and RES, especially in industrial companies in towns with less than 100,000 residents.
 - Companies are mainly focused on ad hoc measures with quick effects - increasing prices, looking for substitutes and cutting costs, including developmental ones.
- 3) Does the anti-inflation shield (including reductions in VAT and excise taxes on energy) help them?**
 - Most companies see the positive effects of the energy tax cuts.
 - For two-thirds of all companies, the anti-inflation shield is not enough support. For 15%, the shield does not help at all.
 - Nevertheless, the majority (60%) of companies believe it should be maintained at least until the end of 2023.
- 4) Do companies feel pressure/identify a need to switch to clean energy in the near future?**
 - Just 1 in 5 companies feel pressure to do so - this tends to apply to larger industrial companies.
 - For the companies perceiving said pressure, the source is generally national and EU regulations, and secondarily from local governments or residents in the vicinity of the company's headquarters.
- 5) Are they aware of EU climate policy and opportunities to support clean energy and energy efficiency?**
 - Companies are rather sceptical about the effectiveness of support from EU policy.

A bird's eye view takeaway: the large energy shock will make inflation more persistent

The massive increases and fluctuations in the prices of energy carriers in 2022 (for natural gas in particular) have caused an unprecedented shock for Polish companies. In times of crisis, we appreciate how important energy is for production – in all companies, not just energy-intensive ones. Attempting to pass on high energy costs to buyers was the initial reaction for most companies, but they did so only partially. Having observed the behaviour of demand, it is possible that they have since decided to stagger price increases for their products or services.

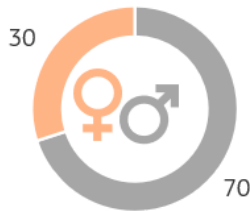
As a result, upward price adjustments will still take place in the form of second-round effects. The government's anti-inflation shield (currently under re-consideration) and various other solutions for 2023 should help to smooth out energy price increases, buying more time for action and investment in energy-saving technologies and our own RES. However, the persistency of inflation throughout 2023 is to come from non-energy items, such as food. This is visible in the rising trend of core inflation, which reached double-digit levels in the recent months (11% YoY in October).

Prioritising the potential for green investment is no doubt the right way to go as a sustainable option for improving energy security in such turbulent times. Amid negative external circumstances, the emphasis on going green at the enterprise level is a reassuring message.

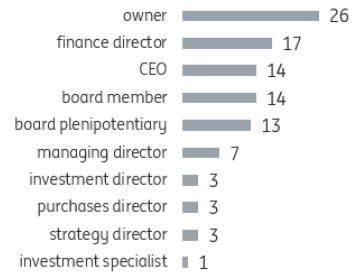
Annex: Structure of the sample (%)

N=300 SME companies, CATI survey, August 2022

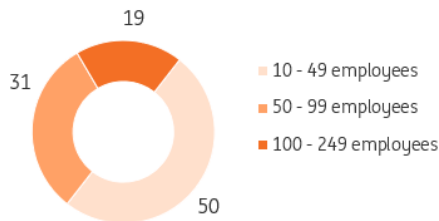
Sex



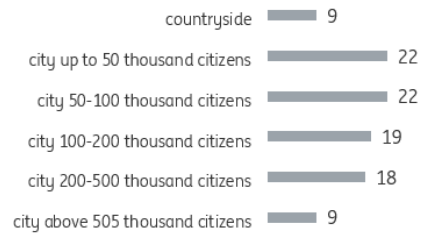
Position



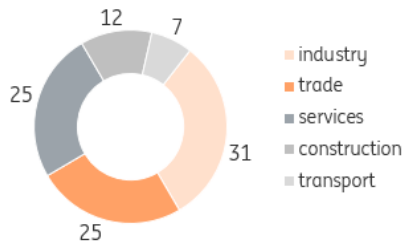
Employment



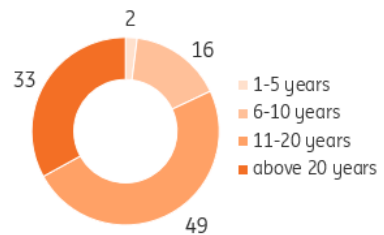
Localisation



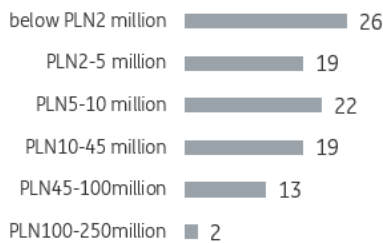
Sector



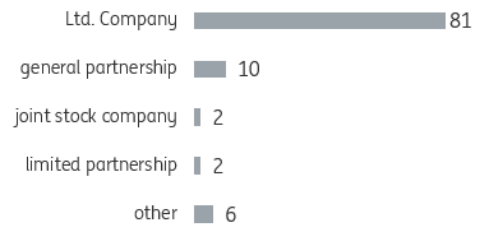
Business operating in years



Annual turnover



Legal form



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