

ENERGY PRICES AS A KEY FACTOR OF INFLATION DEVELOPMENT

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The recent rise in oil prices has directly and indirectly resulted in higher prices of different types of energy, which, in turn, has affected both industry and households. In the end, growing energy prices create inflationary pressures that reflect both a country's dependence on imported energy, and the total energy intensity of the national economy.

Energy prices and energy consumption in Slovakia and the EU

Based on available data from Eurostat, Slovakia's gross inland consumption (GIC) measured in oil equivalent (oe) fell slightly in 2004 in comparison with 2003 (by 3.3%), to stand at 18.1 million tons of oil equivalent (toe) or approximately 1.1% of the total energy consumption in the EU-25. Gross inland consumption per person in Slovakia in 2004 amounted to almost 3,360 kilograms of oil equivalent (kgoe). In the EU-25, average gross energy consumption per person in 2004 represented almost 3,600 kgoe, with Luxembourg recording the highest consumption (more than 10,000 kgoe), followed by Nordic countries and the Netherlands. By contrast, gross energy consumption per person in 2004 was lowest in Latvia (around 1,500 kgoe), Portugal and Poland (around 2,300 kgoe), Lithuania (around 2,400 kgoe) and Greece (around 2,700 kgoe).

In Slovakia, the largest share in gross inland consumption is that of natural gas (30.4%), followed by nuclear energy (26.5%), hard coal (19.3%), oil (17.7%), lignite (5.5%) and other energy sources (0.6%).

The energy generated in Slovakia comes predominantly from nuclear power plants (almost 80% of the total). Thermal power plants generate around 13% of the domestic energy output, while hydroelectric plants and other types of powers plants account for the rest.

Slovakia is heavily dependent on imports of particular energy sources. These imports recorded a slight year-on-year increase in 2004 (up by 3%) to stand at 12.4 million toe in total. Their share in Slovakia's gross inland consumption amounted to almost 70%.

In terms of the total energy intensity of gross domestic product (GIC/GDP), Slovakia's economy is, after Lithuania's and Estonia's, the third most intensive user (around 0.85 kgoe/EUR). Other countries with highly energy intensive economies are the Czech Republic, Poland, Latvia and Hungary (all more than 0.5 kgoe/EUR). Denmark (0.11 kgoe/EUR) and Austria (0.13 kgoe/EUR) have the lowest energy dependent economy. For the EU-25 as a whole, the figure is 0.19 kgoe/EUR.

The prices charged to household and industrial consumers for natural gas and electricity, the main energy sources within gross inland consumption, are collected every six months

(for 1 January and 1 July) for several types of consumers. For the sake of international comparability, household standard consumer Dc is used as an indicator corresponding to an annual electricity consumption of 3,500 kWh, and household standard consumer D3 to an annual natural gas consumption of 83.7 GJ. For industry, industrial standard consumer Ie corresponds to annual electricity consumption of 2,000 MWh,

Chart 1 Imported energy as a share of total domestic consumption and energy intensity of GDP in the EU for 2004

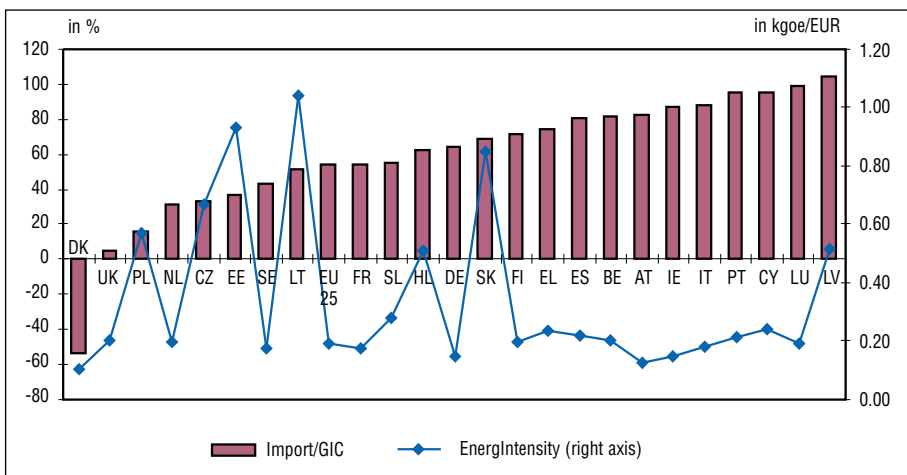




Table 1 Natural gas and electricity prices for selected groups of household and industrial consumers in EU-25 countries (as at 1 January 2005)

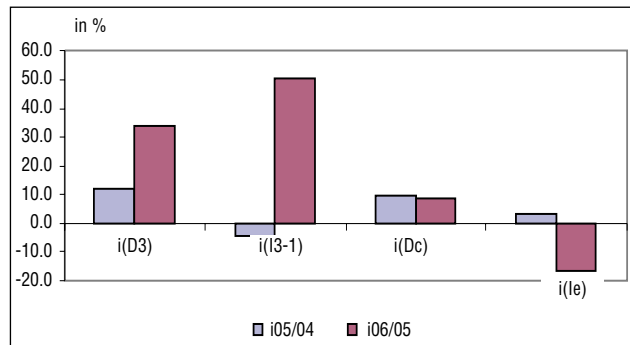
	D3 in EUR/GJ	I3-1 in EUR/GJ	Dc in EUR/100 kWh	Ie in EUR/100 kWh
EU-25	11.37	6.52	13.51	7.47
EU-15	11.84	6.66	13.86	7.61
LV	4.54	3.48	8.28	4.09
EE	4.63	2.75	6.78	4.72
LT	5.41	3.61	7.18	4.98
HU	6.19	6.03	10.64	7.09
UK	7.26	6.10	8.77	5.93
CZ	7.49	5.11	8.68	6.01
PL	7.55	5.30	10.64	5.55
LU	8.14	6.95	14.78	8.51
SK	8.14	5.08	13.38	7.03
SL	10.33	5.89	10.33	6.11
FR	10.57	6.42	11.94	5.78
BE	11.16	5.32	14.81	7.75
ES	11.90	4.68	10.97	7.21
PT	12.34	6.03	13.81	7.13
AT	13.36	8.19	14.13	8.27
DE	13.56	8.87	17.85	9.03
NL	15.17	5.60	19.55	8.99
SE	22.18	9.20	13.97	4.68
DK	28.44	6.79	22.78	7.15

and industrial standard consumer I3-1 to annual natural gas consumption of 41,860 GJ. Year-on-year changes in the prices of natural gas and electricity for the selected categories are measured in euros. For households, the prices of each energy source were given with all taxes included, while for industry, they were without VAT.

According to available information for Slovakia, the price paid by household standard consumer D3 for 1 GJ of natural gas, the most important energy source in gross inland consumption, increased between 1 January 2004 and 1 January 2005 by 12%, while the price for industrial standard consumer I3-1 decreased by 4.7%. During the course of 2005 (from January 2005 to January 2006) the price of natural gas increased substantially for household standard consumers, by almost 34%, and for industrial consumers, by more than 50%.

As preliminary data clearly shows, natural gas prices rose sharply in most EU-25 countries over the course of 2005. Once the data for all Member States has been finalized, the average prices of natural gas in the EU-25 can be expected to be substantially higher for both household consumers and industrial consumers in comparison with the previous year (when natural gas prices increased for households by an

Chart 2 Prices indices of natural gas and electricity for selected groups of household and industrial consumers in the Slovak Republic



average of 4.9% and for industry by an average of 14.8%).

In Slovakia, the price paid by household standard consumer Dc for 1 kWh of electricity increased during 2005 by 8.2% (compared with a rise of 9.9% for the previous year), while the price for industrial standard consumer Ie fell by 16.5% (compared with an increase of 2.9% in 2004).

Energy price changes in Slovakia in selected household and industry groups have for the past two years been dominated by rises in natural gas prices, as Chart 2 shows.

Given that 2005 saw a substantial increase in electricity prices for both households and industry in the countries with the greatest effect on the EU-25 data – Germany (2.6% and 10.1%, respectively), Italy (7% and 10.5%), the United Kingdom (16.3% and 38.6%) – it may be expected that average electricity prices will rise more sharply than they did a year earlier (when prices for household consumer Dc increased by 3.3% and those for industrial consumer Ie went up by 5.8%).

At the beginning of 2005, natural gas prices in EUR/GJ were higher for households than for industry in all countries for which data is available.

The Baltic countries recorded the lowest natural gas prices for household consumer D3, and the prices in Slovakia were also less than 10 EUR/GJ.

At the beginning of 2005 in Slovakia, the natural gas price for industrial consumer I3-1 stood at 5.08 EUR/GJ and the price for household customer D3 was 8.14 EUR/GJ. The percentage ratio of the former to the latter represents 62.4%. In the EU-25, the prices for I3-1 and D3 amounted to, respectively, 6.52 EUR/GJ and 11.37 EUR/GJ, representing a ratio of 57.3%. When the year began, the ratio between natural gas prices for the selected group of household and industrial consumers was, in general, higher in the new Member States of the EU-25 than in the old Member States (with the exception of Luxembourg and the United Kingdom), which means that the EU-15 report



Chart 3 Natural gas prices for industry, households and their ratio in EU countries in 2005

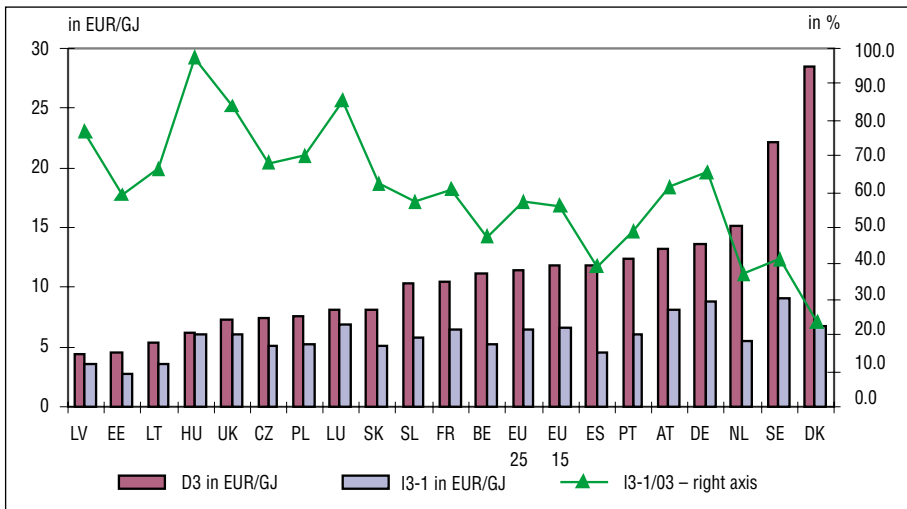
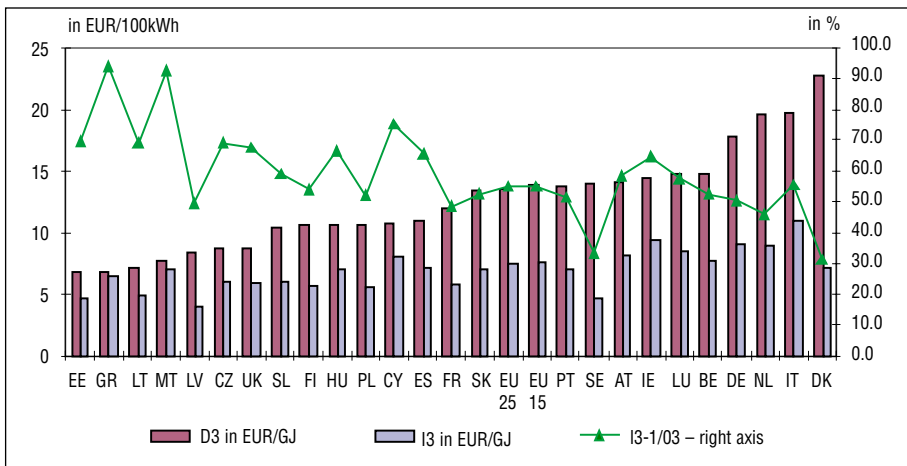


Chart 4 Electricity prices for industry, households and their ratio in EU countries in 2005



a more substantial difference between the natural gas prices for households and for industry.

In the EU-25, the average electricity price for household consumer Dc represented 13.51 EUR/100 kWh, and for industrial consumers 7.47 EUR/100 kWh. The ratio between the average electricity price for households and that for industry came to 55.3%.

For household consumer Dc in Slovakia, the electricity price began 2005 at 13.38 EUR/100kWh, slightly less than the average in the EU-25. For industrial consumer Ie in Slovakia, the electricity price stood at 7.03 EUR/100 kWh, which in ratio to household prices represented 52.5%.

Energy prices in Slovakia are catching up with the average in the EU-25, more in terms of electricity prices than natural gas prices. At the beginning of the year, natural gas prices (in EUR/GJ) for household consumer D3 stood at 71.6% of the average price in the EU-25, and the prices for industrial consumer I3-1 represented 77.9%. Electricity prices (in EUR/100 kWh) for house-

hold consumer Dc and for industrial consumer Ie represented 99% and 94.1% of the EU-25 average.

All this information is interesting, but as far as monetary policy is concerned, it is better to obtain information on the comparable level of energy prices in individual EU countries after adjusting for price differences between the countries. Purchasing Power Parity or PPP is typically used for this purpose, as it expresses the cost of the same amount of comparable goods or services regardless of the country in which they are purchased.

PPP represents a recalculated currency unit that converts the economic indicators expressed in the national currencies into an artificial common currency. In other words, it is used for converting nominal total expenditure on particular goods and services into their groups (subaggregates) and into GDP, as the

major expenditure aggregate in countries subject to mutual international comparison by means of this artificial rate. The comparison takes as its basis a base country or locality representing 1 PPP. For the other countries compared, the appropriate values of their national currencies in relation to this unit are calculated.

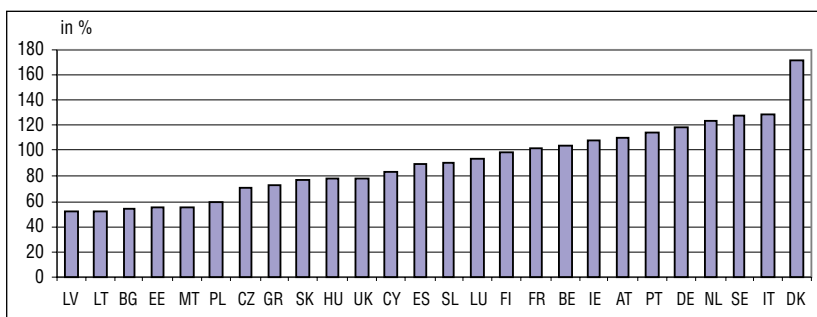
By comparing the costs of particular goods and services, as well as their aggregates, in PPP with the actual value of the exchange rate of the country's currency, we obtain an index of the price level for individual commodities and their aggregates which basically represents the price ratio of the commodities and their aggregates within the set of compared countries.

Eurostat data for 2004 shows that within Slovakia's household final consumption, comparable

¹ The construction of comparable values is addressed in greater depth in, for example, the following document: PURCHASING POWER PARITIES FOR COUNTRIES IN TRANSITION, Methodological Papers, OECD, Paris, 1995.



Chart 5 Energy prices level indices as a share of household final consumption in EU-25 countries in 2004 (EU-25 = 100)



Source: Eurostat, Statistics Office of the Slovak Republic (ŠÚ SR), NBS calculations

energy prices amounted to 78% of the average energy price level in the EU-25. Since the price-level index for household final consumption stood at 55% of the EU-25 average, it may be said that comparable energy prices in Slovakia have already achieved substantial convergence with the average energy prices of the EU as a whole. If it is assumed that 80% of energy producer prices cover production consumption (which already takes account of world commodity prices) and 20% cover operational costs, then it can be expected that the following period will show convergence only in that part of the price that relates to operating costs. This process should provide an appropriate measure of how far Slovakia's economic performance has caught up with the average in the EU-25.

The lowest energy prices compared within the EU-25 are in the Baltic countries, at around 50% of the average. By contrast, ten of the EU-15 countries (apart from Greece, the United Kingdom, Spain, Luxembourg and Finland) reported energy prices higher than the EU-25 average. The highest energy prices compared within the EU-25 are in the Netherlands, Sweden, Italy, and, most expensive of all, Denmark.

It is assumed that energy prices in Slovakia will have a persisting and considerable effect on industrial producer prices and consumer prices, given the conditions created by the high energy intensity of the Slovak economy, the limited domestic energy sources, the fact that real energy prices in Slovakia are lower than the average in EU-25 countries, and the rising prices of energy on world markets.

Prices of natural gas and electricity in selected new Member States

The highest natural gas prices for households are reported in Slovenia, Slovakia and the Czech Republic (all above 10 EUR per GJ), while the lowest are in the Baltic countries. In recent years, the most substantial increases in natural gas prices for households have been recorded in Poland, the Czech Republic

and Slovakia. In Estonia, by contrast, natural gas prices for households have hardly changed over the past two years.

Natural gas prices for industry among the selected countries do not at present show such substantial differences as do those for households. Prices in the V4 countries and Slovenia are relatively similar, while the Baltic countries report significantly lower natural gas prices for industry.

As at 1 January 2006, electricity prices for households among selected new Member States were by far the highest in Slovakia (14.48 EUR/100kWh). Households in Hungary and Slovenia also pay more than 10 EUR/100 kWh. Households in Lithuania and Estonia pay the least.

Electricity prices for industry show much smaller differences from country to country than do prices for households. The largest electricity bills for industrial consumers are in Hungary and the Czech Republic (7.61 EUR/100 kWh and 7.31 EUR/100 kWh, respectively). By contrast, the cheapest electricity for industry is to be

Table 2 Prices of natural gas and electricity for households and producers in selected new EU Member States

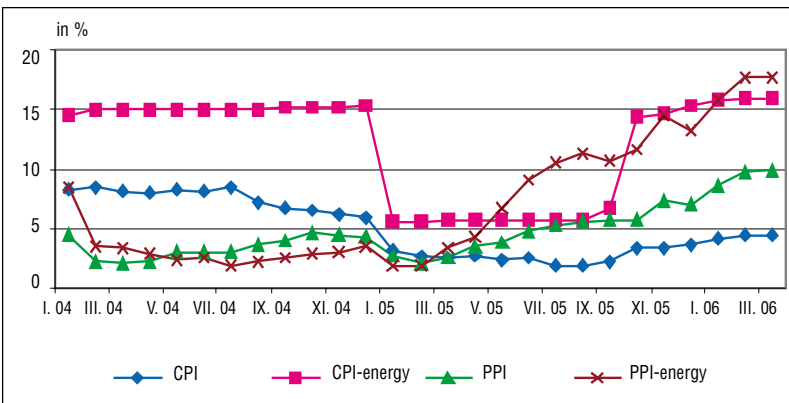
(as at 1 January of the respective year)

	D3 in EUR/GJ Natural gas prices for households			I3-1 in EUR/GJ Natural gas prices for industry		
	2004	2005	2006	2004	2005	2006
CZ	6.57	7.49	10.03	4.20	5.11	7.34
EE	4.64	4.63	4.63	2.91	2.75	2.84
LV	4.22	4.54	5.34	3.47	3.48	4.05
LT	5.45	5.41	6.24	3.83	3.61	4.45
HU	5.77	6.19	7.40	5.63	6.03	7.88
PL	6.34	7.55	9.46	4.26	5.30	6.77
SL	9.64	10.33	12.99	4.8	5.89	7.96
SK	7.27	8.14	10.88	5.33	5.08	7.65

	Dc in EUR/100 kWh Electricity prices for households			Ic in EUR/100 kWh Electricity prices for industry		
	2004	2005	2006	2004	2005	2006
CZ	8.07	8.68	9.85	4.92	6.01	7.31
EE	6.49	6.78	7.31	4.55	4.72	5.11
LV	5.75	8.28	8.29	4.31	4.09	4.09
LT	6.32	7.18	7.18	5.13	4.98	4.98
HU	9.92	10.64	10.75	6.61	7.09	7.61
PL	9.04	10.64	11.90	4.88	5.55	6.33
SL	10.10	10.33	10.49	6.09	6.11	6.51
SK	12.18	13.38	14.48	6.83	7.03	5.87



Chart 6 Year-on-year changes in the CPI, PPI and component energy prices



found in the Baltic countries. The countries which in recent years have seen the sharpest rises in electricity prices for industry are the Czech Republic and Poland.

Among the selected new Member States, the lowest prices of energy (natural gas and electricity) are reported in the Baltic countries. The highest natural gas prices for both households and industry are currently charged in Slovenia. Slovakia has the highest electricity prices for households, and Hungary the dearest for industry.

Over the past year, the steepest rises in natural gas prices for households occurred in the Czech Republic and Slovakia (up by 33.9% and 33.7%, respectively), while the natural gas price for households in Estonia remained at the level of the previous year. The most substantial increase in natural gas prices for industry during the past year occurred in Slovakia and the Czech Republic (50.6% and 43.6%, respectively).

The largest rises in household electricity prices during the past year were reported in the Czech Republic (13.5%) and Poland (11.8%). In Lithuania and Latvia, household electricity prices remained unchanged from the previous year. For industry, the highest rises in electricity prices were in the Czech Republic (21.6%) and in Poland (14.1%). Industrial customers in Slovakia saw electricity prices decline by 16.5%.

The effect of energy prices on consumer prices and producer prices in Slovakia

Energy prices are reflected in both producer prices and consumer prices, but the intensity and timing of this effect differs between producer prices and consumer prices. Among the reasons for this are the different methodologies used in setting energy prices for small and large customers, and the fact that regulated retail energy

prices are adjusted not progressively but in jumps, based on a decision of the regulatory authority (usually made once a year, upon the request of the regulated entity). In general, energy price changes are more intensively reflected in producer prices than in consumer prices, which is also a result of the policies implemented by retail chains.

In Slovakia, the consumer price index (CPI) and producer price index (PPI) have developed differently over the past two years. Throughout 2004

and up to March 2005, the CPI recorded larger year-on-year changes than did the PPI. The situation has changed since then with producer prices increasing at a faster pace than consumer prices. It may therefore be said that the CPI changes and PPI changes are affected by different factors. The effect in question is caused by energy prices, and, as Chart 7 clearly shows, they have a greater impact on industrial producer prices than on consumer prices (they also confirm the calculated coefficient correlations $r_{PPI, energy} = 0.92$, and $r_{CPI, energy} = 0.76$). This is probably also related to the fact that the energy weight in the PPI and CPI stands at 33.9% and 12.3%, respectively.

The development of energy prices for both households and industry is to a certain extent also affected by the methodology used for setting them (as at a certain date for households, but continuously for industry, and so on). CPI energy prices have risen in jumps (in January and October 2005), and their year-on-year increases, especially in 2004, were significantly larger (around fivefold) than the year-on-year rises in PPI energy prices (which is also related to the process of gradually eliminating the differences in the income and expenses of regulated subjects vis-à-vis the retail sector).

Changes in PPI energy prices have been more dynamic since March 2005. In the five months after May

Chart 7 Year-on-year changes in industrial producer price categories and given subcategories

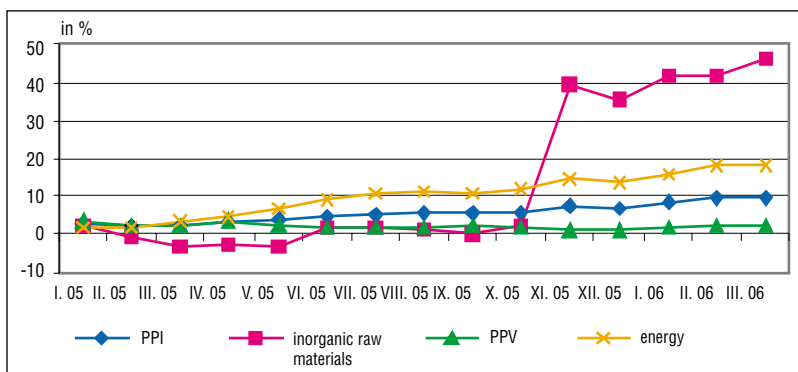
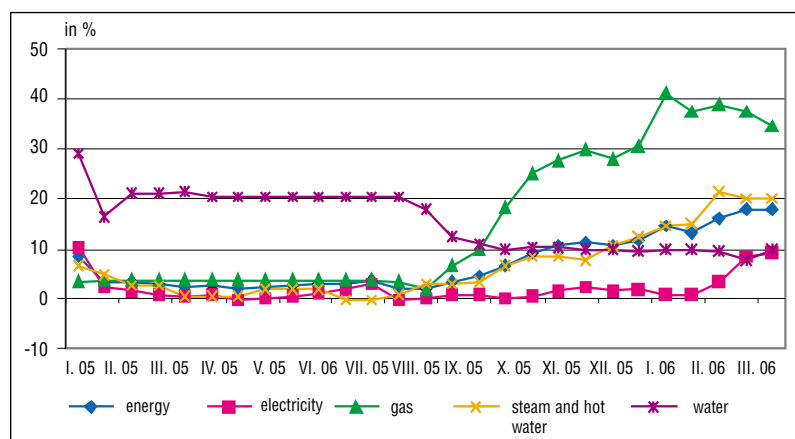




Chart 8 Year-on-year changes in energy subcategories



2005 and at the beginning of 2006, they rose more quickly in comparison with CPI energy prices. From this development of PPI energy prices, it was possible to conclude not only that regulated entities are, after a certain interval, requesting the Regulatory Office for Network Industries (ÚRSO) to increase regulated prices (which is subsequently reflected in a CPI increase), but also to give an approximate indication of the extent (which happened in October 2006). Therefore the development of PPI energy prices may also be an indicator of the future development of regulated prices. PPI energy prices are still increasing in 2006 (rising at a faster pace than CPI regulated prices), and the continuation of this trend may herald a further rise (higher than expected) in regulated prices.

Energy prices are one of the three components of the aggregated price for industrial consumers. The energy weight of almost 34% within the category of industrial output does not always have to represent the same share of the month-on-month or year-on-year change in the aggregated price. At the beginning of 2005, for example, the change in energy prices accounted for between 25% and 30% of the total year-on-year change in the aggregated industrial producer price (the year-on-year change in manufactured product prices accounted for almost 70%, and the year-on-year change in the prices of inorganic raw materials had a negligible share), while at the start of 2006, the share stood at 70% (the year-on-year change in manufactured product prices accounting for 15% and the year-on-year change in inorganic raw material prices also for around 15%).

The year-on-year increase in energy prices was fuelled mainly by the substantial rise in gas prices that took place after May 2005. It was also caused to a certain extent by the introduction on 1 January 2005 of a new methodology for the monthly setting of gas prices for large consumers, the basis of which takes into account the nine-month average prices of Brent crude

oil and the one month average exchange rate of the Slovak koruna against the US dollar.

The pace of gas price growth peaked in November 2005 and has remained at a relatively high level since then (with prices up by almost 40%). In the coming months of 2006, it may be expected that the base effect will result in a gradual slowdown in gas price growth on a year-on-year basis. The recent significant increase in energy prices has also been supported by the rise in prices of steam and hot water (up by more than 20% in the first

months of 2006). Another trend to be observed since the beginning of 2006 is the greater increase in electricity prices. The increase in water treatment and distribution prices gradually settled at around 10% after recording more than 20% in 2004 and at the beginning of 2005.

In general, energy prices are reacting to market developments. Energy prices on European exchanges increased last year, and, of course, Slovak industry also had to make adjustments for them. Since the first half of 2005, energy producer prices have begun to rise more sharply with an average year-on-year increase of 8.3% (compared with 3.2% in 2004). This rising trend was further confirmed in the first months of 2006 (the year-on-year rise for February and March represented 17.8%).

The privatization and liberalization of the energy market has still to meet the expectation that they would bring greater competition and, consequently, either force down energy prices or at least brake their growth. The liberalization of national gas markets is underpinned by Directive 2003/55/EC of the European Parliament and of the Council, of 26 June 2003, concerning common rules for the internal market in natural gas. Under this Directive, non-household customers of gas have been able to choose their own supplier since 1 July 2004, and household customers will have the option to do so from 1 July 2007. The liberalization of the electricity market is likewise governed by Directive 2003/54/EC, of 26 June 2003, on common rules for the internal market in electricity. The market was opened for non-household customers from 1 July 2004 and will be opened for household customers from 1 July 2007.

The fact is that industrial consumers in Slovakia now have a liberalized energy market yet are paying more for natural gas than they did in 2004. The electricity price for industry has now fallen to below its level at the start of 2004, after rising in 2005. Households, meanwhile, have seen prices of both natural gas and electricity increase in recent years. According to



experts, the situation in Slovakia is that real liberalization of the gas market has yet to happen and not even 5% of the electricity has been opened up.

It was also expected that a reduction in transport and distribution prices (accounting for almost one third of the total energy price) would be reflected in the setting of energy prices, but this has not happened either.

Energy prices also been adversely affected by small customers changing to other sources of energy. The growth of energy prices for large customers also reflects the fact that suppliers' fixed costs are unchanged and are covered by a smaller number of customers.

The prospect is that electricity production will incur additional costs in relation to the carbon dioxide emission quotas set by the European Commission and others. Whereas, for example, steelworks and chemical plants need only cut their CO₂ emissions by 1.25% by 2012, power plants must reduce them by 15%. This means that operators will have to purchase emission certificates, which will, in turn, be reflected in the electricity price.

The issue of energy prices has received increased attention over recent months, and in Slovakia too. It is acknowledged that there will be further price rises owing to insufficient capacity in energy production. According to experts, the most critical period in the electricity sector will arrive within five to seven years, when the whole EU will experience a shortage of electricity. This development, the experts say, may be mitigated by reducing energy intensity and using energy more efficiently. The national priority for curbing the increase in energy prices is to develop nuclear power and alternative sources of energy, according to a statement issued by the Economy Ministry at the beginning of May in the context of a conference on energy security in Slovakia.

Conclusion

On the whole, energy prices in recent years have been rising substantially owing to the situation in energy markets, and this has to a certain extent affected both consumer prices and industrial producer prices. A consequence of the energy price growth has been an increase in inflationary pressures. From what has happened in the past two years, it may be concluded that changes in consumer prices are not affected by the same factors as are changes in industrial producer prices. In 2004 and up to March 2005, the rise in consumer prices outstripped the growth in industrial producer prices, but the situation has changed since then.

Energy prices over the past two years have had a more substantial effect on changes in industrial producer prices than on changes in consumer prices. The year-on-year changes in energy prices as a component of industrial producer prices have increased

sharply since March 2005. In the five months after May 2005, and also at the beginning of 2006, they rose faster in comparison with CPI energy prices. In general, changes in energy prices are reflected in producer prices to a greater extent than in consumer prices, which is related to the increase in ÚRSO-regulated prices and also to the policies implemented by retail chains. PPI energy prices are, however, a good indicator of the future development of CPI regulated prices.

It may be assumed that energy prices in Slovakia will have a persisting and considerable effect on industrial producer prices and consumer prices, given the conditions created by the high energy intensity of the Slovak economy, the limited domestic energy sources, the fact that real energy prices in Slovakia are lower than the average in EU-25 countries, and the rising prices of energy on world markets.

The strength of the effect that external and internal factors have on the development of energy prices, and consequently on consumer prices and industrial producer prices, means more attention needs to be paid to the professional preparation and consistent implementation of the national energy policy. Given Slovakia's already considerable energy dependence and its commitment to decommissioning part of its production capacity within the next few years (nuclear power plant Jaslovské Bohunice), resolute steps need to be taken in order to safeguard not only the energy security of the country but to ease the economic burden of energy prices on industry and the social burden of energy prices on households. Well thought out measures in the area of energy policy could help counteract the rising inflationary pressures resulting from the increase in energy prices on world markets.

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