



# The current development of energy prices in Slovakia

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*In connection with EU's growing energy dependence on oil<sup>1</sup> and with growing influence of energy prices on the product prices and consumer prices, the energy industry is at the center of attention of all Central European institutions. After a relatively long-discussed package of proposals for liberalization of the energy sector, the Energy Council adopted the basic lines of an agreement in June 2008 and the energy ministers confirmed a compromise procedure focused on the separation of energy production from its transmission and supply to consumers (the so-called proprietary unbundling) in October 2008, with the former national monopolies (such as EDF, E.ON or RWE) keeping the possibility to retain control of the distribution networks, provided that they subject them to external supervision.<sup>2</sup> The European Parliament, too, has adopted a resolution on getting a grip on energy prices.<sup>3</sup>*

Increased attention is paid to the energy sector also in Slovakia. On its meeting on 15 October 2008, the Government of the Slovak Republic discussed the **draft strategy for energy security of the Slovak Republic**, whose aim is to ensure the implementation of steps that will enable the creation of a competitive energy industry ensuring secure, reliable and effective supplies of all forms of energy at acceptable prices, taking into account energy consumer protection, environmental protection, sustainable development, security of supply and technical security.

Oil price turbulences in the world markets have required increased attention not only of power engineers, industrial producers, households and small consumers of various energy types, but also analysts and representatives of central banks.

## ENERGY PRICE DEVELOPMENT IN THE PRODUCTIVE SPHERE

In July 2007, the average Brent oil price (monthly average: 76.3 USD/barrel) exceeded its maximum of August 2006 (74.5 USD/barrel) and after a virtually permanent growth it reached a new average monthly peak (137.2 USD/barrel) in July 2008. From the beginning of 2007, the prices of refined oil products correlated most with the oil price within industrial production products (correlation coefficient:  $r=0.93$ ). The relation between the oil price and the gas price within the energy group was less significant ( $r=0.60$ ).

From the beginning of 2007, the year-on-year change in energy prices was quite low and correlation with the average oil price was lower ( $r=0.53$ ) than with the oil price. Electricity prices and price water treatment and distribution prices showed an even lower correlation with oil prices ( $r=0.44$  and  $r=0.34$ , respectively). Steam and hot water supply prices correlated significantly negatively

with the oil prices over the period under review ( $r=-0.84$ )<sup>4</sup>.

The energy prices markedly participated in year-on-year changes in domestic industrial producer prices for Slovakia as early as in the course of 2007. From the beginning of 2008, however, a growing influence of energy prices on the development of aggregate industrial producer prices has been evident. While in January 2008, their contribution to the change in the aggregate industrial producer price was almost 60%, in October the percentage was 84%. This growing percentage was accompanied by a decrease in the percentage of the contribution of industrial production prices from 40% to 10%. Prices of products from mining and quarrying, also due to their negligible weight,

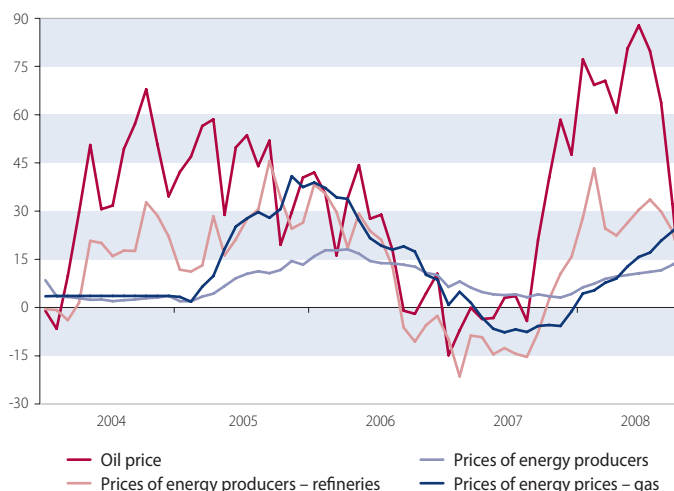
<sup>1</sup> In 2007, the degree of energy dependence of the EU increased to 82.2% compared to 74.4% in 1995. Eurostat, Energy, transport and environment indicators, 2007 issue

<sup>2</sup> See e.g. Energy ministers have agreed on liberalisation, 13 October 2008, [www.euractive.sk](http://www.euractive.sk).

<sup>3</sup> The European Parliament resolution of 25 September 2008 on getting a grip on energy prices ties in with its resolution of 29 September 2005 on oil dependency; its resolution of 19 June 2008 on the crisis in the fisheries sector caused by rising fuel prices; the Commission Communication of 13 June 2008 entitled, Facing the challenge of higher oil prices; and the agreement at the informal ECOFIN Council of 12-13 September 2008 in Nice. It is based on an evaluation of the situation in the world oil markets and outlines the areas, in which it is necessary to adopt effective measures. See [www.europarl.europa.eu](http://www.europarl.europa.eu) for details.

<sup>4</sup> One of the reasons can be the time lag related to the use of a 9-month average for the setting of gas prices, which is decisive for the heat generation.

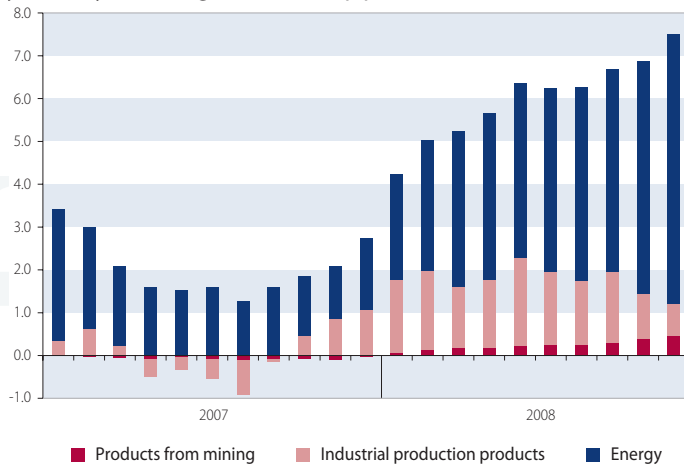
Chart 1 The development of oil prices, refined oil products and energies (year-on-year change in %)



Source: Statistical Office of the Slovak Republic, [www.eia.doe.gov](http://www.eia.doe.gov), chart by the NBS.

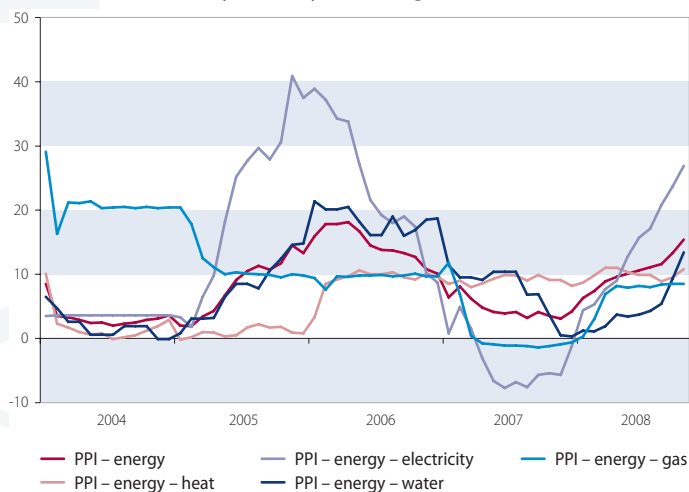


**Chart 2 Development of contributions of the main components to year-on-year changes of the PPI (p.p.)**



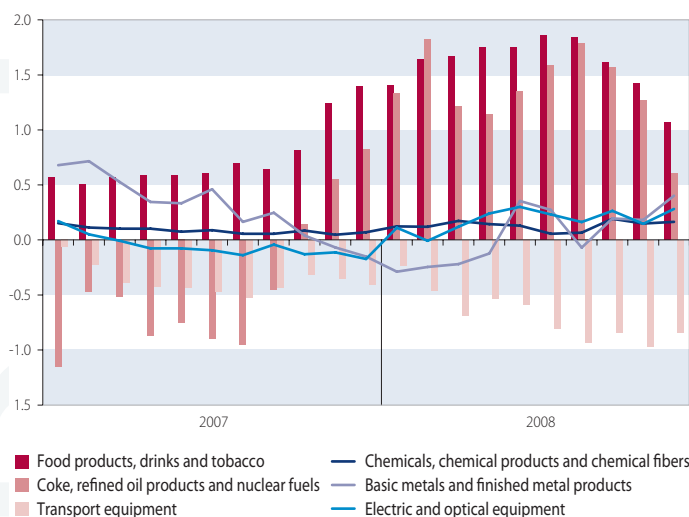
Source: Statistical Office of the Slovak Republic, chart by the NBS.

**Chart 3 Development of producer energy prices and their components within the PPI (year-on-year change in %)**



Source: Statistical Office of the Slovak Republic, chart by the NBS.

**Chart 4 Development of contributions of selected components of industrial production products to year-on-year changes in aggregate product prices (p.p.)**



Source: Statistical Office of the Slovak Republic, chart by the NBS.

contribute to the change in the aggregate industrial producer price only insubstantially, but they have followed a growing trend since the beginning of 2008, which can be seen in Chart 2.

In October 2008, for example, the faster aggregate year-on-year growth of energy prices for producers was the result of an accelerated growth of the prices of all their basic components. The prices of gas production and gas fuel distribution by pipelines increased by 26.9%, the prices of electricity production and distribution by 10.8%, the prices of steam and hot water supply by 13.4% and the water treatment and distribution prices increased at the same rate as one month before – by 8.5%.

From a longer term perspective, the changes in aggregate energy prices in the industry are influenced particularly by the development of gas prices. The development of electricity prices has been in a relatively neutral relation to the development of aggregate energy prices ( $r=0.4$ ). The developments of prices of steam and hot water supplies and prices of water treatment and distribution had been quite different from the development of aggregate energy prices until the end of 2006, but from early 2007 they have been in strong correlation with them. The relation between the development of prices of heat supplies and aggregate energy prices is characterized by an opposite development.

The development of industrial production prices has been influenced primarily by the prices of food, refined oil products and transport equipment. While refined oil product prices were a dampening factor for aggregate industrial production prices until September 2007, from the beginning of the 4<sup>th</sup> quarter of 2007 and during 2008 their contribution to inflation was similar to that of food prices, whose weight within the industrial production products however was four times as high.

The development of consumer prices also widely depends on the development of industrial producer prices. In the case of energy prices, several differences between the year-on-year changes in energy prices can be observed within aggregate industrial producer prices and within consumer prices. The more considerable influence of oil prices on energy prices within aggregate industrial producer prices than within consumer prices is due to an almost three times higher weight of energy prices within the groups being compared.

### THE DEVELOPMENT OF ENERGY PRICES FOR SMALL CONSUMERS

In individual months from the beginning of 2004 to mid-2005, energy prices for producers recorded considerably different year-on-year changes as compared to energy prices for households, with the consumer energy prices growing far more significantly than industrial energy prices. This was associated with the process of energy price deregulation, too. From the end of 2005 to the 4<sup>th</sup> quarter of 2007, the development of energy prices



both for producers and for the population was relatively similar. From the last months of 2007 onwards, the difference has been growing gradually, the growth rate of prices for the population being considerably lower than that of producers.

Year-on-year changes in energy prices for households and their individual components have had an interesting evolution over the last years. From a long-term perspective, the development of energy prices for households has been quite considerably influenced by the development of prices of all basic components, but unambiguously mainly by the development of gas prices. A fundamental turn in the year-on-year changes of energy prices for households has been evident from the beginning of 2007, when the development of heat prices has correlated with the development of aggregate energy prices most considerably ( $r=0.86$ ). The development of gas prices ( $r=0.65$ ) has had a still significant influence (but lower than over the long-term horizon) from the beginning of 2007, while the influence of the development of the electricity prices and water rates and sewage charges have dropped considerably ( $r=0.14$  and  $0.15$ ).

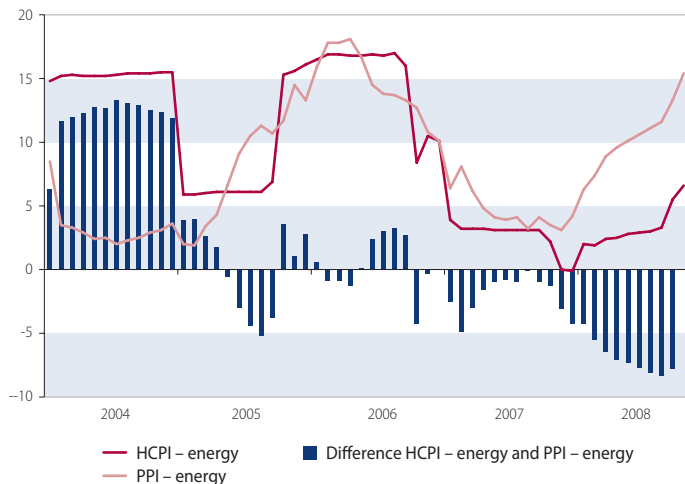
Comparing the year-on-year changes of the prices of individual energy carriers for households and producers in more detail, we find out that in October 2008 the most significant difference concerned year-on-year changes in gas prices (26.9 percentage points) and electricity prices (8.2 percentage points). The difference between the year-on-year growth of prices of water supplies and treatment in the last month under comparison was 2.2 percentage points in favor of households and in the case of heat prices 1.7 percentage points in favor of producers.

From a long-term perspective, too, the prices of heat and water have changed approximately in the same way both for households and for industrial producers on a year-on-year basis.

The development of natural gas prices followed a diametrically different trend to the detriment of households for example in 2004. In 2005, but particularly in 2006, year-on-year changes in oil prices followed approximately the same trend both for households and for industrial producers. Over the first three quarters of 2007, the gas prices for households were growing moderately year-on-year and they were decreasing for industrial producers from the second quarter to the end of 2007. From the beginning of 2008, the gas prices for households have been at the level prevailing one year ago, but gas prices for industrial producers have been growing year-on-year and increased by almost 24% in September 2008.

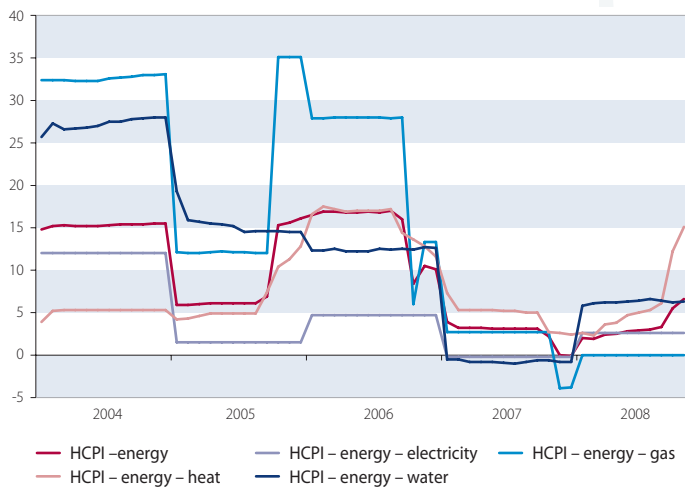
The year-on-year development of electricity prices in the course of 2004, too, was considerably different for households as compared to industrial producers. In 2005, the prices of electricity developed in a relatively similar way for both consumer groups, but from the beginning of 2006 the year-on-year changes have followed a considerably growing trend for industrial producers than for

**Chart 5 Development of the energy prices within the PPI and HCPI (year-on-year change in %)**



Source: Eurostat, Statistical Office of the Slovak Republic, chart by the NBS.

**Chart 6 Development of the energy prices within the HCIP (year-on-year change in %)**



Source: Statistical Office, chart by the NBS.

households, for which the electricity prices in 2007 were slightly below their level of the previous year and until 2008 they grew at a lower rate than the electricity prices for industrial producers.

Considerable differences in the development of energy prices for households and producers in 2004 were also caused by different methodology of the setting of energy prices for producers and small producers. The growing differences between the development of both groups of aggregate energy prices in the recent period are probably also due to more consistent regulation of the justified costs of energy producers and distributors for households on the part of the regulator.

When determining prices, no distinction should be made between producers and small consumers (also with regard to the need of higher transparency and general simplification of the procedure of approving the prices of individual energy carrier types by the regulator). On the part of the

5 A study of the European consumer organization BEUC says that attempts of the European Commission to put through a liberalization of the energy sector have not brought more „bad“ news than „good“ new for consumers so far. The study denotes as „bad“ new the limited possibilities of choice and difficulties in changes of the energy supplier. The security of gas and electricity supplies to consumers appeared among „mixed“ and „good“ news.



Chart 7 Year-on-year change in the electricity prices (in %)

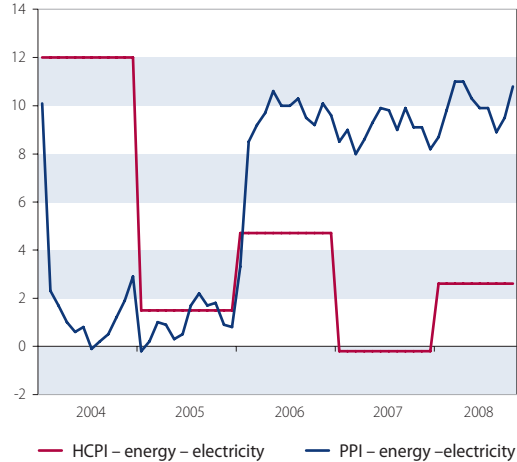


Chart 8 Year-on-year changes in gas prices (in %)



Chart 9 Year-on-year changes in the heat prices (in %)

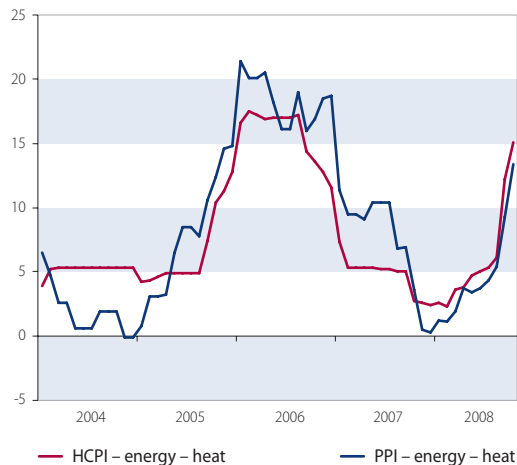
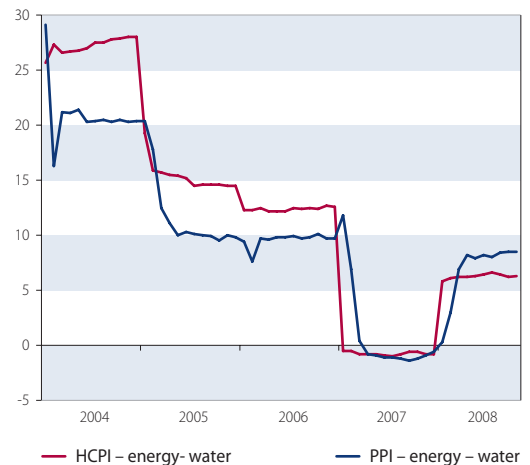


Chart 8 Year-on-year changes in water prices (in %)



Source: Statistical Office of the Slovak Republic, chart by the NBS.

6 „We see no reason, why for example large industrial energy consumers should pay the third highest electricity and gas prices in Slovakia, given that for example the production cost per unit of electricity produced in Slovakia is among the lowest such cost,” the executive director of Klub 500 said. See e.g.: The SPP has been surprised by the fact that firms complain about the energy prices. <http://tvojepeniaz.pravda.sk>, 19.11.2008.

regulator, consistent assessment of the inclusion of justified costs and adequate profit of energy producers and suppliers in the proposed price of the respective energy commodity with simultaneous taking into account of sufficient consumer protection should be crucial.

The application of different criteria in the setting of energy prices for producers and households can also have deforming effects on the formation of prices of identical energy commodities. Considerably higher energy prices for producers than for households can induce the producers to attempts to include the increased costs in the prices of their products, which will bring about secondary passing on of parts of those costs to the final consumers.

As a matter of fact, despite considerable pressure on the part of central EU institutions, production and distribution of individual energy carriers has not received the necessary competitive foundations yet and has not been liberalized in real terms.<sup>5</sup> In Europe, it has still not been managed to have a competitive energy industry that would be able to ensure reliable and effective supplies of all

forms of energies at acceptable prices<sup>6</sup>, taking into account the objective satisfaction of the interests of their producers, environmental protection, sustainable development and technical security.

### A COMPARISON OF THE CURRENT LEVEL OF GAS AND ELECTRICITY PRICES IN SELECTED COUNTRIES

Our comparison of the current level of gas and electricity prices for households and industrial producers will focus on the surrounding V4 countries, Slovenia, the EU-27 and the EA-15. To be able to compare the gas and electricity prices in selected countries, we will use Eurostat data and methodology (see Box).

The gas price for standard households in Slovakia as at 1 January 2008 reached the value of 11.89 EUR per GJ (9.99 GJ excluding taxes) and although it experienced a moderate growth compared to 1 July 2007, currently gas for standard households in the countries under review is cheaper only in Poland and Hungary.

The currently available internationally comparable gas price for standard producers is 11.04



## Box 1

### EUROSTAT METHODOLOGY FOR THE ASCERTAINMENT OF NATURAL GAS AND ELECTRICITY PRICES

Prices of natural gas and electricity both for households and for producers are ascertained with semiannual periodicity for several types of consumers. Data for the so-called standard households or standard producers use to be applied in the case of international comparisons. The data on gas and electricity prices under comparison include taxes. Taxation of natural gas in surrounding V4 countries is relatively similar for households and for producers (from about 16% to 19%). The situation with electricity is similar, with the exception of Poland, where the tax is about 24%. Taxation of gas and electricity in Austria, Slovenia, as well as on average for the EA-15 is considerably higher. As of 1 July 2007, the ascertainment methodology was slightly modified in that the designation and new definition of consumption for individual types of consumers was changed. The main differences in the definition of consumption of the so-called standard consumers are in the following table:

Old methodology (until 2007)	New methodology (from 1 July 2007)
D3_average annual gas consumption of households 83.70 GJ	D2_average annual gas consumption of households from 20 to 200 GJ
I3-1_average annual gas consumption of producers 41.860 GJ	I3_average annual gas consumption of producers from 10.000 to 100.000 GJ
Dc_average annual electricity consumption of households 3.500 kWh	DC_average annual electricity consumption of households from 2.500 to 5.000 kWh
le_average annual electricity consumption of producers 2.000 kWh	ID_average annual electricity consumption of producers from 2.000 to 20.000 MWh

Table 1 Gas and electricity prices for standard households and producers

	D2 in EUR/GJ (gas_households)		I3 in EUR/GJ (gas_producers)		DC in EUR/100 kWh (electr_households)		ID in EUR/100 kWh (electr_producers)	
	1. 7. 2007	1. 1. 2008	1. 7. 2007	1. 1. 2008	1. 7. 2007	1. 1. 2008	1. 7. 2007	1. 1. 2008
EU-27	14.41	15.35	9.86	11.14	16.00	16.33	10.17	10.75
EA-15	16.54	17.47	10.23	11.68	16.75	17.11	10.39	11.11
CZ	10.06	12.20	8.11	10.56	10.63	12.74	9.24	10.99
HU	10.62	11.24	10.29	11.52	12.96	15.48	11.92	11.97
AT	16.95	22.99	.	.	17.40	17.79	9.74	11.11
PL	11.15	11.56	8.80	10.20	13.80	12.59	8.46	10.18
SL	14.14	15.51	10.61	12.14	11.16	11.47	8.97	9.21
SK	11.51	11.89	9.45	11.04	13.70	14.21	11.34	12.87

Source: Eurostat.

EUR per GJ (9.28 EUR per GJ excluding taxes) in Slovakia. In comparison with July 2007, it has grown by almost 17% and the current gas prices for standard producers in Slovenia, Hungary and the euro area are slightly higher.

The price of electricity for standard households was 14.21 EUR per 100 kWh (11.94 EUR per 100 kWh excluding taxes) in Slovakia at the beginning of 2008. The electricity price for households was higher as compared to July 2007 in all countries under review except Poland. Hungary and on average also the EU-27 and the euro area had a higher electricity price for standard households than the current price in Slovakia.

At the beginning of 2008, the electricity price for standard producers was 12.87 EUR per 100 kWh (10.83 EUR per 100 kWh) in Slovakia in 2008 and it increased by almost 14% over 6 months.

It was unambiguously the highest price as compared to the surrounding countries under review and the euro area.

As for the degree of reaching the average price of individual energy types of the euro area, Slovakia reached as at 1 January 2008 in the case:

- gas prices for standard households 68.0% of the euro area average, or 76.7% of the euro area average excluding taxes,
- electricity prices for standard households 94.5% of the euro area average or 99.0% of the euro area average excluding taxes,
- gas prices for standard producers 83.1% of the euro area average or 98.0% of the euro area average excluding taxes,
- electricity prices for standard producers 115.8% of the euro area average or 132.4% of the euro area average excluding taxes.



Chart 11 Comparison of gas prices for standard households with the EA-15 average (incl. taxes) (in %)

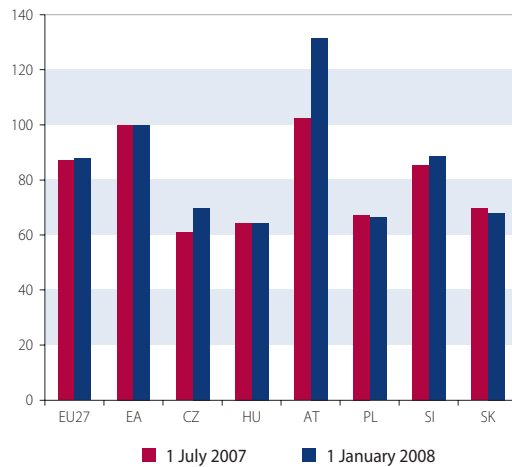


Chart 12 Comparison of gas prices for standard producers with the EA-15 average (incl. taxes) (in %)

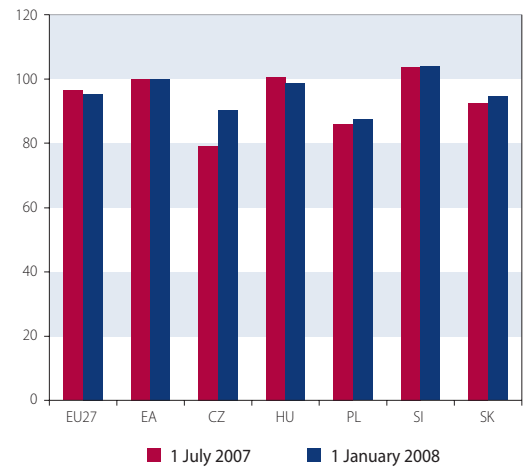


Chart 13 Comparison of electricity prices for standard households with the EA-15 average (incl. taxes) (in %)

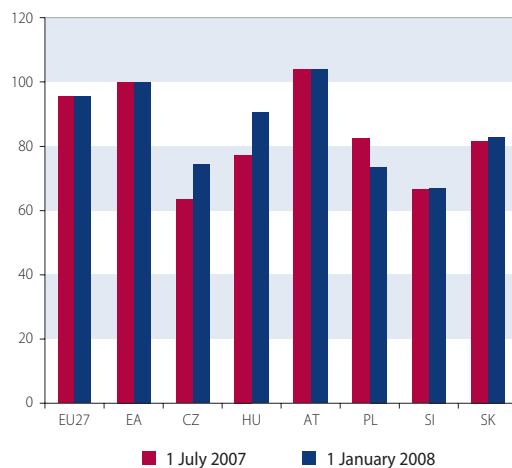
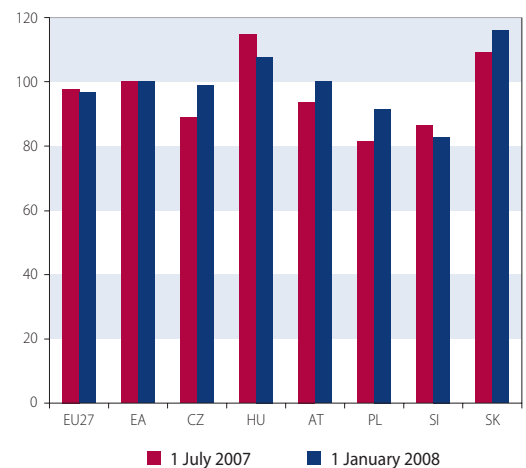


Chart 14 Comparison of electricity prices for standard producers with the EA-15 average (incl. taxes) (in %)



Source: Eurostat, charts by the NBS.

The degree of convergence of Slovak gas and electricity prices for producers and households towards to average prices of energy commodities within the EU-27 and the euro area, in general, does not fall behind the surrounding countries.

### SUMMARY

The turbulences on the world's oil markets are directly influenced particularly by the development of energy prices and indirectly also by the prices of other commodities. The increasing contribution of changes in energy prices to the changes of aggregate average industrial producer price has been evident recently.

In the long run (from the beginning of 2004 onwards), the correlation of the year-on-year development of the oil price with the energy prices for industrial producers was weak and lower ( $r=0.0048$ ) than in the short run (from the beginning of 2007  $r=0.53$ ).

Within consumer prices, the development of energy prices is in negative correlation with the development of oil prices both in the long run ( $r=-0.1721$ ) and in the short run ( $r=-0.375$ ).

The crucial component for the development of energy prices is the gas price, which more considerably influences the development of energy prices for industrial producers than for households. Heat prices have a greater impact on the development of aggregate energy prices for households than on the development of the aggregate energy prices for industrial producers. In relation to the aggregate energy prices for producers, electricity prices are relatively neutral, and in the case of households their influence on the aggregate energy prices has been decreasing gradually primarily from 2007.

The aggregate energy prices for industrial producers developed year-on-year similarly to the aggregate energy prices for households only in certain periods. From the end of 2007, their differ-



ences have been evidently increasing gradually, mainly as a result of a significantly lower growth rate of energy prices for households than for industrial producers.

The level of electricity prices for standard households is currently at about 95% of the euro area average and the level of the natural gas prices for standard households in Slovakia corresponds to less than 70% of the average of the euro area. Nevertheless, the level of natural gas prices for standard households is currently higher than in Slovakia only in the Czech Republic out of the V4 countries.

The current level of Slovak electricity prices for standard industrial producers is more than 15%

above the euro area average and according to internationally comparable data the level of natural gas prices for standard industrial producers in Slovakia reaches more than 80% of the euro area average.

There should be no considerable differences between the objectified prices of individual energy types, because they have deforming effects on the energy market. It is important to look for a transparent and simple mechanism, which will both take into account justified interests of producers and energy suppliers, and ensure adequate protection of energy consumers.

#### References:

1. Cár, M.: Ceny energií ako dôležitý faktor inflácie. [Energy prices as an important factor of inflation] In.: Biatec No. 6/2006.
2. Cár, M.: Energetika a otázky vývoja cien energií na Slovensku v posledných rokoch. [Energy prices and issues of the development of energy prices in Slovakia in recent years] In: Biatec No. 6/2007.
3. EU27 energy dependence rate at 54% in 2006. In: Newsrelease 98/2008, Eurostat.
4. EUROSTAT Website/Home page/ Environment and energy/Data.