Box 8

NON-OIL ENERGY PRICE DEVELOPMENTS

Energy prices account for approximately 10% of the overall euro area HICP. Non-oil energy (gas, electricity, solid fuels and heat energy) represents just under half of this, with oil energy (motor and heating fuel) accounting for slightly more – see table. Movements in crude and refined oil prices are generally passed through quickly and in full to consumer oil energy prices, with a lag of three to five weeks.[1] This box considers developments in consumer non-oil energy prices and their relationship with oil prices, with a particular focus on the two most important components, electricity and gas, representing 2.2% and 1.5% of the HICP respectively.

Weight of energy and its sub-components in the euro area HICP

(percentages)

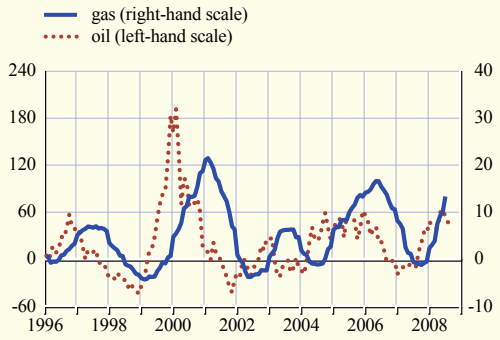
HICP energy	9.8
Oil energy	5.5
Of which:	
Motor fuel	4.6
Heating fuel	0.9
Non-oil energy	4.3
Of which:	
Electricity	2.2
Gas	1.5
Heat energy	0.5
Solid fuel	0.1

Sources: Eurostat and ECB calculations.

1 For more details, see the box entitled "Recent developments in consumer oil energy prices" in the July 2008 issue of the Monthly Bulletin.

Chart A Developments in oil prices (in euro terms) and euro area consumer gas prices

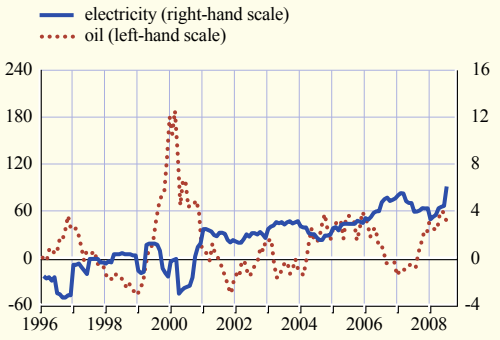
(annual percentage changes)



Sources: Bloomberg, Eurostat and ECB calculations.

Chart B Developments in oil prices (in euro terms) and euro area consumer electricity prices

(annual percentage changes)



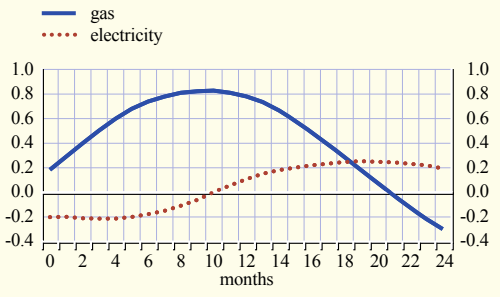
Sources: Bloomberg, Eurostat and ECB calculations.

Charts A and B show the evolution of the year-on-year rates of change in consumer gas and electricity prices in the euro area alongside oil price developments. Regarding gas prices, there is a relatively clear relationship, albeit with some lag, with oil prices. In particular, following the three strong surges in oil prices in 1999-2000, 2004-2006 and 2007-2008, there were also noticeable increases in gas prices, with the peak in the year-on-year rate of change in gas prices occurring somewhat after the peak in the year-on-year rate of change in oil prices. This graphical impression is confirmed by Chart C, which shows the correlation of the year-on-year rates of change in consumer gas and electricity prices with the year-on-year rate of change in oil prices and its lags.

For consumer gas prices, the peak correlation, 0.8, occurs with a lag of around 7-12 months after oil price movements. This high correlation is due to the fact that international gas prices have tended to be strongly linked with oil prices, with long-term contracts often explicitly indexing gas prices to oil prices. Nonetheless, even without explicit indexing there are reasons for expecting some relationship between oil and gas prices. The main reason is that, for some purposes, such as electricity generation and heating, gas and oil are close substitutes. Looking ahead, however, it should be noted that changes in the technology and source composition of electricity generation (see below), the evolution of the liquefied natural gas market and other market factors may affect the correlation of oil and gas prices.

Chart C Correlation of consumer gas and electricity price changes with oil price changes and their lags

(correlation of annual percentage changes)



Source: ECB calculations.

Regarding consumer electricity prices, there is a much less clear relationship with oil prices (the correlation coefficient is generally below 0.2 in absolute terms) than is visible for consumer gas prices. This may reflect, in part, the fact that electricity can be generated from a number of different sources, including nuclear power, oil, gas, solid fuel (hard coal, lignite and peat) and renewable sources such as wind, water and solar power. The mix of energy

sources, which have different fixed and variable costs, varies both across countries and over time and can explain to some extent why electricity prices are dependent not only on trends in oil and gas prices. For example, France uses nuclear power more intensively than other EU countries; Germany uses relatively large proportions of solid fuels (hard coal and lignite); and Italy and Spain have, in recent years, increasingly used gas for electricity generation. Consumer electricity prices are thus determined by, among other things, the distribution of generation capacity by fuel type and its age profile, as well as overall spare generating capacity. However, as discussed below, market competition is also an important factor.

Looking ahead, and notwithstanding the decline in oil price levels since early July, there are still upward pressures on non-oil energy prices, in particular on gas prices. These pressures are due to the fact that (a) oil prices remain elevated (despite having returned to levels observed in early May 2008 they remain significantly above levels a year ago) and (b) gas prices tend to respond with a lag to oil price developments. Hence, consumer gas prices may not yet have fully reflected past increases in oil prices. High oil and gas prices are also likely to put upward pressure on electricity price developments.

The gas and electricity sectors not only share the common feature that oil is a close substitute and/or an important input; they are also both "network industries" and are sometimes considered to be natural monopolies.[2] However, careful regulation can contribute to ensuring sustainable competition in these sectors. Following up on a mandate given by the European Council in spring 2007, the European Commission in September 2007 adopted a third package of legislative proposals for the EU electricity and gas markets. This latest package was introduced as, despite earlier legislative packages designed to liberalise electricity and gas markets, a European Commission study completed in early 2007[3] identified ongoing shortcomings in the functioning of these markets with considerable differences between de jure and de facto levels of competition.[4] In an environment of high and volatile oil prices it is vital that efforts to bolster de facto competition in European gas and electricity markets are strengthened.

2 Network industries generally involve the supply of products or services to final customers via a network infrastructure. In some cases natural monopolies may be an essential element of network industries, although this may change over time as technology changes. Clear examples are changes in parts of the telecommunications and postal industries, which were once considered natural monopolies. The electricity industry chain involves a number of activities – generation, transmission, distribution and supply – not all of which (in particular generation) can be considered to be network activities.

3 In 2005 the European Commission launched an inquiry into competition in gas and electricity markets. The final report ("DG Competition report on energy sector inquiry"), published in January 2007, identified serious shortcomings in the electricity and gas markets: too much market concentration in most national markets; a lack of liquidity, preventing successful new entry; too little integration between Member States' markets; an absence of transparently available market information; an inadequate level of unbundling of network and supply interests; customers being tied to suppliers through long-term downstream contracts; and balancing markets and small balancing zones which favoured incumbents.

4 A box in the December 2004 issue of the Monthly Bulletin considered the impact of previous regulatory reforms on competition and price developments in the euro area electricity and gas markets.