

# Methodology or pricing: how can the higher volatility of consumer gas and electricity prices in Belgium be explained ?

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## Introduction

In recent years, gas and electricity prices in Belgium have contributed significantly both to inflation and to an increase in the volatility of inflation. Furthermore, they have considerably fuelled the inflation differential relative to the three main neighbouring countries and the euro area as a whole, upwards in 2008 and downwards in 2009. This article first describes the high volatility of gas and electricity prices in Belgium and the increase in volatility over the recent period. Offering an initial analysis of the factors that could explain this phenomenon, the second section assesses the impact of the new methodology used to record these prices: in 2007, prices ceased to be recorded using the payments approach (yearly bills) and are now based on monthly tariffs. Far from explaining the differences relative to other countries, this change actually brought Belgium into line with practices in those countries. Thus, the greater volatility is related to the intrinsic characteristics of gas and electricity price-setting in Belgium. Section three examines the extent to which this heightened intrinsic volatility may be attributed to changes made to price-setting since the full liberalisation of the gas and electricity market in 2007. It also looks at the role that fixed taxes and transport and distribution tariffs may have played. In the fourth section, gas and electricity prices for residential use in Belgium are compared with those in the three main neighbouring countries and those of the euro area. Particular attention is paid to whether more volatile gas and electricity prices may ultimately have led to higher price levels. The final section presents the conclusions.

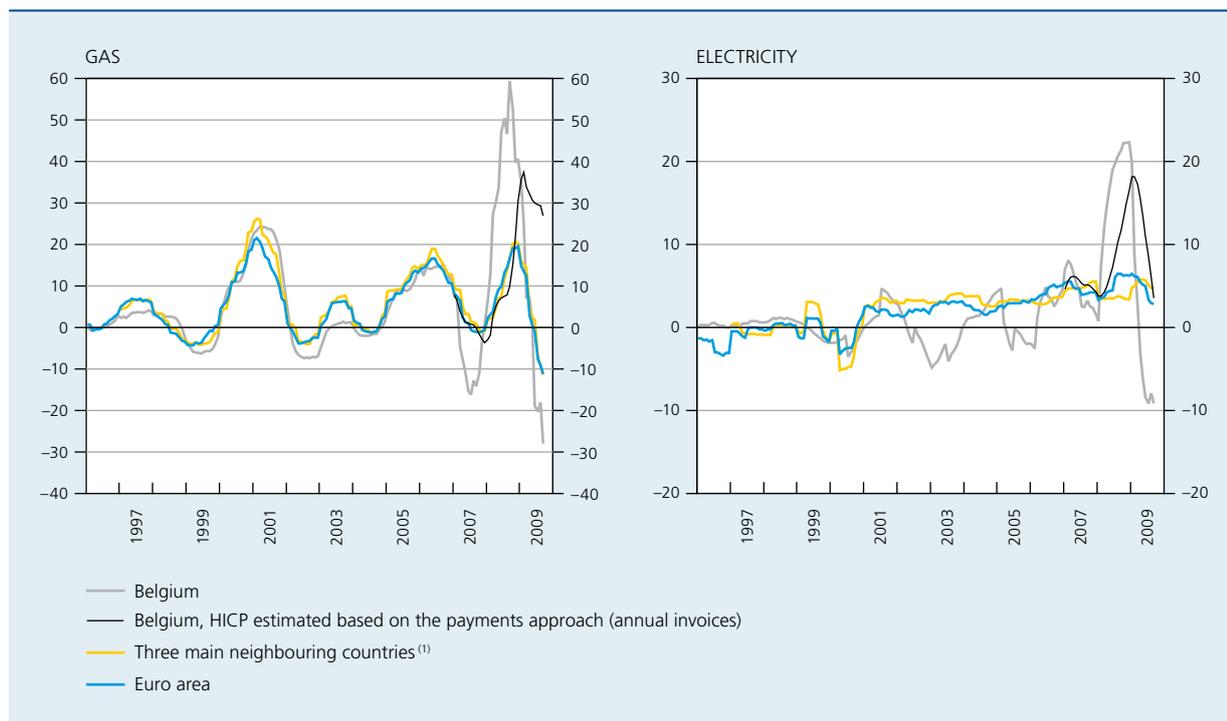
## 1. Higher volatility of consumer gas and electricity prices in Belgium

Based on trends in the harmonised index of consumer prices (HICP), gas price movements in Belgium up until 2006 were seen to move in line with those in the three main neighbouring countries<sup>(1)</sup> and in the euro area as a whole. However, from 2007 onwards, fluctuations became much more pronounced in Belgium. Gas prices began to fall faster in early 2007 and then rose much more sharply, before again declining more rapidly in 2009. With respect to electricity, prices during the period 1996-2006 were slightly more volatile in Belgium than in the three main neighbouring countries and the euro area. But volatility subsequently increased rapidly from 2008: electricity prices first experienced a strong rise, clearly more significant than in the reference areas, before falling much more steeply in 2009. These trends have led to an increase in the volatility of Belgian inflation in recent years. These observations have been confirmed by a statistical analysis of the volatility, based notably on standard deviations, while taking into account the possibility of an aggregation bias. In effect, a series produced by aggregating trends from several countries tends to be less volatile than the series composing it because national trends that move in opposite directions can offset each other. Nevertheless, the results described here still hold

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(1) As in the rest of the article, the series illustrating trends in the three main neighbouring countries correspond to the average of their national trends, weighted according to their weighting in the euro area HICP.

**CHART 1** CONSUMER GAS AND ELECTRICITY PRICES  
(monthly HICP data, percentage change compared to the corresponding month of the previous year)



Sources : EC, NBB.  
(1) The "Three main neighbouring countries" series are weighted according to the euro area HICP weighting.

true if we conduct a more in-depth analysis comparing the countries individually. For example, for the period following 2007, we can show that, among the 11 euro area countries used as a reference<sup>(1)</sup>, Belgium had the most volatile gas prices and the second most volatile electricity prices<sup>(2)</sup>, whereas previously its position had been much less atypical.

What is the reason for this increased volatility? There appear to be two possible explanations. The first is the change in the method of recording gas and electricity prices in Belgium, both in the HICP and in the national consumer price index (CPI) and the health index derived from it. Since the beginning of 2007, consumer gas and electricity prices have been recorded monthly on the basis of actual price changes, whereas they had previously been recorded each month based on the annual invoices paid by consumers that did receive their detailed annual account during that month. By switching from tariffs relevant for the preceding twelve months to tariffs for

the month itself, the factors that affect gas and electricity prices began to have an immediate impact on inflation and the volatility of inflation, which increased, whereas the previous recording method made their impact more gradual and smoothed out temporary shocks. It seems clear that this change in methodology pushed inflation upwards in 2008 and downwards in 2009. This explains the difference between past and present conditions in Belgium, but not necessarily the differences observed relative to other countries, because in principle, the methods used to record prices in those countries are not known. As a result, this explanation is worth verifying, but it still does not rule out the second possible explanation, which has more to do with the intrinsic characteristics of price formation in Belgium. The next two sections deal with each of these two factors respectively.

## 2. Impact of the method of recording prices

To begin with, the change in the method of recording prices raises the question of what is the most appropriate recording practice from a strictly methodological standpoint. On the one hand, consumers do not pay bills on a

(1) These are the 11 countries for which data are available for the entire period 1996-2006; these countries were also the euro area's first 11 members.  
(2) During the period following 2007, the trend in electricity prices in the Netherlands exhibited even greater volatility, but in that country prices first fell substantially in early 2008 and then rose significantly from mid-2008 and early 2009.

monthly basis and cannot establish a direct link between the amount they are billed and the distinct monthly tariffs because, apart from interim bills that are usually of a set amount, they only receive one yearly statement showing both the quantities consumed and tariffs applied over the past year. Thus using annual invoices to record prices for the CPI follows a “payments” approach. On the other hand, it is clear that price changes must be recorded when the consumer is confronted with them, i.e. at the time the product is purchased, a principle established in European statistics legislation<sup>(1)</sup>. Applying this principle justifies the recording of prices using monthly tariffs (the “acquisition” approach) even though it may be somewhat removed from the consumer’s perception of price trends. In Belgium, the transition from the former to the latter approach should be connected with the liberalisation of the residential gas and electricity market, which took place in stages. This market was liberalised in July 2003 in Flanders, then in January 2007 in Wallonia and Brussels. Since liberalisation, there has not been an official source for the amounts corresponding to annual invoices. Now, only monthly tariffs are published by the regional regulators.

It remains to be established whether this methodology change is a source of divergence relative to the other euro area countries. To do so, it would help to have detailed information on the actual methods used to record prices in each of those countries, and for each type of product. Unfortunately, this sort of information is not easy to obtain. Nevertheless, it is possible to draw indirect conclusions regarding these practices in the case of gas and electricity by using a data source separate from the HICP.

In effect, in its Energy Statistics database – which includes a section on prices – Eurostat also publishes half-yearly prices for electricity and gas in level (in euro by unit consumed) for different types of consumer. The information is available either including or excluding taxes. Up to 2006, the prices published are the prices on 1 January and 1 July of each year, and thus correspond to a method of recording prices using monthly tariffs, similar to the new method applied for the Belgian HICP since 2007. As a result, by comparing price trends taken from this alternative source with those generated by the HICP, we can verify which recording method is used to calculate this index. That said, this alternative database underwent its own

methodology change in July 2007 due to changes in the definitions of consumer types and the reference period for recording prices. Consumer types are now defined as a consumption band rather than a fixed quantity, and the reference period is now the average of the half-year rather than the first month of the half-year. The analysis that follows thus focuses on the data recorded between 1996 and 2006.

With respect to gas prices in Belgium, a fairly strong connection between these two sources can be observed, clearly marked by a certain lag in the HICP behind Eurostat’s Energy Statistics. This is fully consistent with what we would expect to see from a comparison of annual tariffs (HICP) with monthly tariffs (Energy Statistics) over the period 1996-2006. Annual invoices do actually correspond to an average of the monthly prices over the past 12 months. And a moving average always lags behind the underlying data somewhat, which explains the delay seen here. By contrast, in the case of the euro area, trends in gas prices according to the two databases prove to be strongly correlated and there is no lag<sup>(2)</sup>. A similar analysis (not illustrated here) indicates the same holds true in the three main neighbouring countries. Thus, we may conclude indirectly that, for the HICP, the dominant method of recording prices in the three main neighbouring countries and in the whole of the euro area is the same as that used for the Energy Statistics database, and that it is thus based on monthly tariffs.

As regards the rate of price change, correlation between the two sources is weaker for electricity than for gas, both at the national level and for the whole euro area. As in the case of gas, however, a stronger correlation can be observed for the three neighbouring countries and for the euro area than for Belgium. Here again, as expected, there is a lag in Belgium due to the differences in methodology cited earlier, as the HICP calculated using annual invoices lags the Energy Statistics based on monthly tariffs. Here again, the lack of a lag in the euro area and the three main neighbouring countries is a sign that the dominant method of recording prices in these countries’ HICPs is based on monthly tariffs.

Since 2005, there is some indication that the lag between the two sources in Belgium has tended to narrow in the case of electricity. Whereas the change in methodology was not fully implemented until January 2007, electricity prices in Flanders were actually already recorded according to the new method in 2005 because electricity market liberalisation in Flanders started earlier than in Wallonia or Brussels, in July 2003. In the case of gas, the new method was applied to prices recorded in Flanders during the course of 2006.

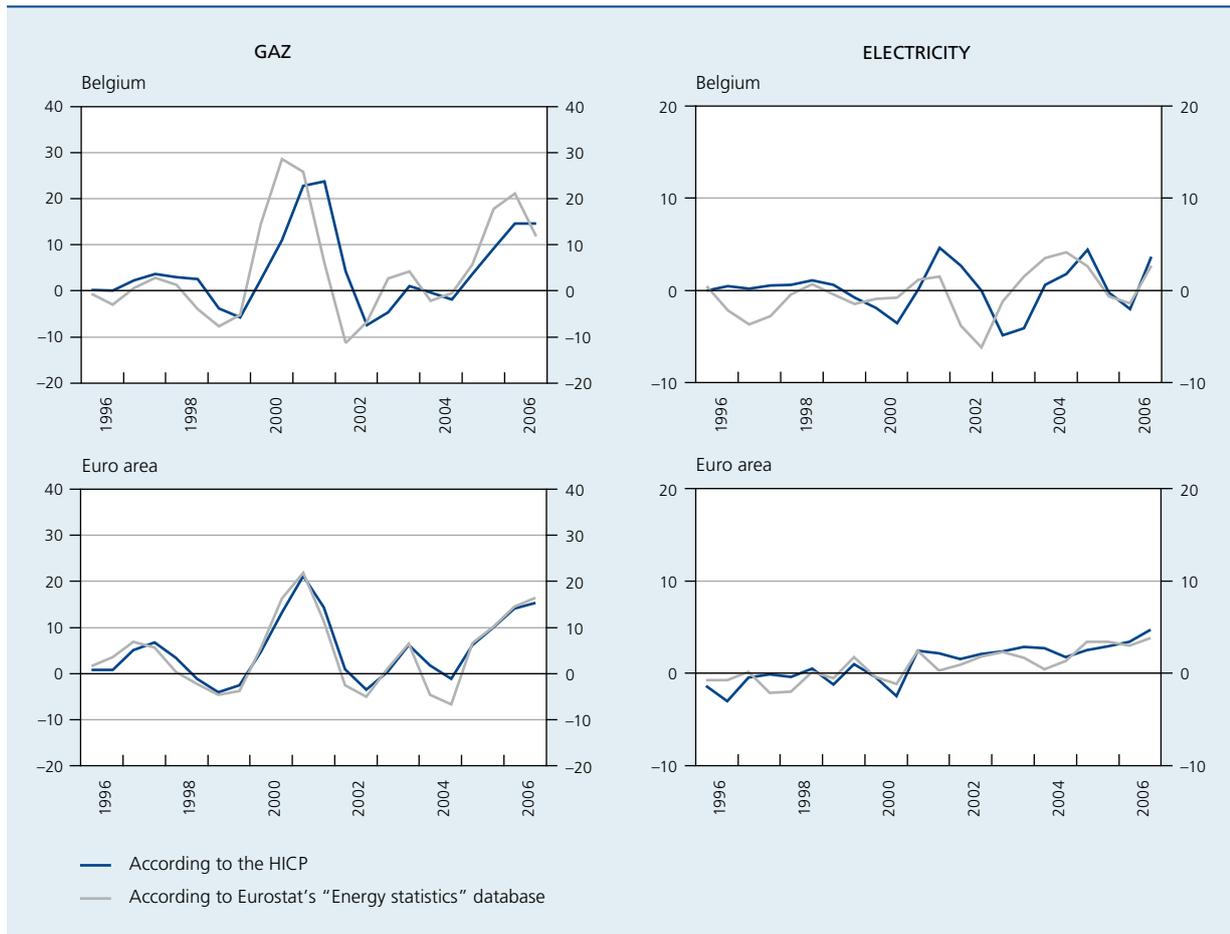
(1) As set out in Directive No. 2601/2000 of 17 November 2000 establishing the detailed rules for the implementation of Council Regulation (EC) No. 2494/95 on the timing for entering purchaser prices into the Harmonised Index of Consumer Prices, “Prices used in the HICP shall be the prices paid by households to purchase individual goods or services in monetary transactions. Prices for goods shall be entered in the HICP for the month in which they are observed. Prices for services shall be entered into the HICP for the month in which the consumption of the service at the observed price can commence.”

(2) While this is also the case for numerous individual euro area countries (including each of the three main neighbours), it is not systematically the case.

**CHART 2**

**GAS AND ELECTRICITY PRICES ACCORDING TO THE HICP AND THE EUROSTAT "ENERGY STATISTICS" DATABASE <sup>(1)</sup>**

(half-yearly data, percentage change compared to the corresponding period of the previous year)



Sources: EC, NBB.

(1) The HICP reflects trends in the prices of a basket of typical consumer products. The series given in the "Energy Statistics" database represent the consumption of an average household and correspond to those used for Eurostat's structural indicators. For gas, this means a D3 consumer (annual consumption of 83.70 GJ), and for electricity, this means a Dc consumer (annual consumption of 3,500 kWh, of which 1,300 at night).

The fact that the correlation between the two sources is weaker in the case of electricity and that there is substantially less correlation between countries than in the case of gas – regardless of which database is used – indicates that the structure of consumption, and especially the structure of national electricity production – which differs considerably from one country to the next – play a significant role in determining the price of electricity. The effect of the structure of production should have lessened recently due to the liberalisation of the electricity market and the fact that the market is increasingly integrated due to the expansion of interconnections, in particular when looking at the three main neighbouring countries.

Based on the preceding observations, it can be concluded that the method used to record gas and electricity prices in euro area countries and in the three main neighbouring

countries is based on monthly tariffs and has been for several years. In other words, the change in methodology in Belgium brought it into line with the price-recording methods used in other countries. Therefore, the change cannot be an explanatory factor for the divergences observed since 2007 with respect to fluctuations and volatility. Consequently, the fact that fluctuations in gas and electricity prices have grown much more pronounced in Belgium since 2007 reflects greater intrinsic volatility, which in all likelihood is attributable to the characteristics of gas and electricity price-setting. This conclusion is corroborated by the observation that even if the payments approach is applied to the period following 2006, Belgian gas and electricity price trends still differ considerably from those in the three main neighbouring countries and the euro area.

### 3. Gas and electricity price-setting in Belgium

Since January 2007, the residential segment of the Belgian gas and electricity market has been entirely liberalised, which means that consumers are free to choose their electricity and gas suppliers. Several suppliers are present on both the gas and electricity markets, and they can set their prices as they wish. This liberalisation has had little impact on the main principles governing pricing: taking their cue primarily from the pricing methods applied when the market was regulated, most suppliers use pricing formulas that automatically adapt prices every month using, on the one hand, an index designed to cover changes in the prices of the energy component of natural gas and electricity and, on the other hand, an index designed to reflect changes in the non-energy costs of producing and delivering natural gas and electricity. That said, suppliers are free to choose their own benchmark indices and to define the parameters used in their pricing formulas. With respect to the energy component of consumer natural gas reference prices, all the pricing formulas provide for an adjustment of prices based on the trend, smoothed and with somewhat of a lag, in fuel oil prices and, since 2007, in the trend of natural gas spot prices, i.e. the Zeebrugge natural gas reference price. As for the energy component of consumer electricity prices, pricing formulas are still largely based on the *N<sub>c</sub>* parameter published by the CREG (Commission for Electricity and Gas Regulation, the industry regulator), which reflects trends in the prices of oil, coal and gas, and nuclear plant capacity utilisation.

In principle, these formulas are set for a long period, but suppliers may adapt them as they see fit. For example, the main gas supplier made a change in October 2007 to one of the parameters of its benchmark energy cost index. It decided to increase the constant term in the corresponding indexing formula, a decision that is likely not unrelated to the plunge in natural gas prices observed in early 2007. This pricing formula revision was followed by similar adaptations at the other suppliers, although to a lesser extent. More recently, in their electricity price-indexing formulas, certain suppliers have dropped *N<sub>c</sub>* in favour of indices that reflect prices on the electricity (Belpex), gas and petroleum product markets, although this has not significantly affected the consumer price index. Similarly, certain natural gas and electricity suppliers have recently begun to offer fixed-price contracts for a set period of time, regardless of fluctuations in underlying cost factors. This practice, however, appears to be less widespread than the practice of offering prices that adjust automatically.

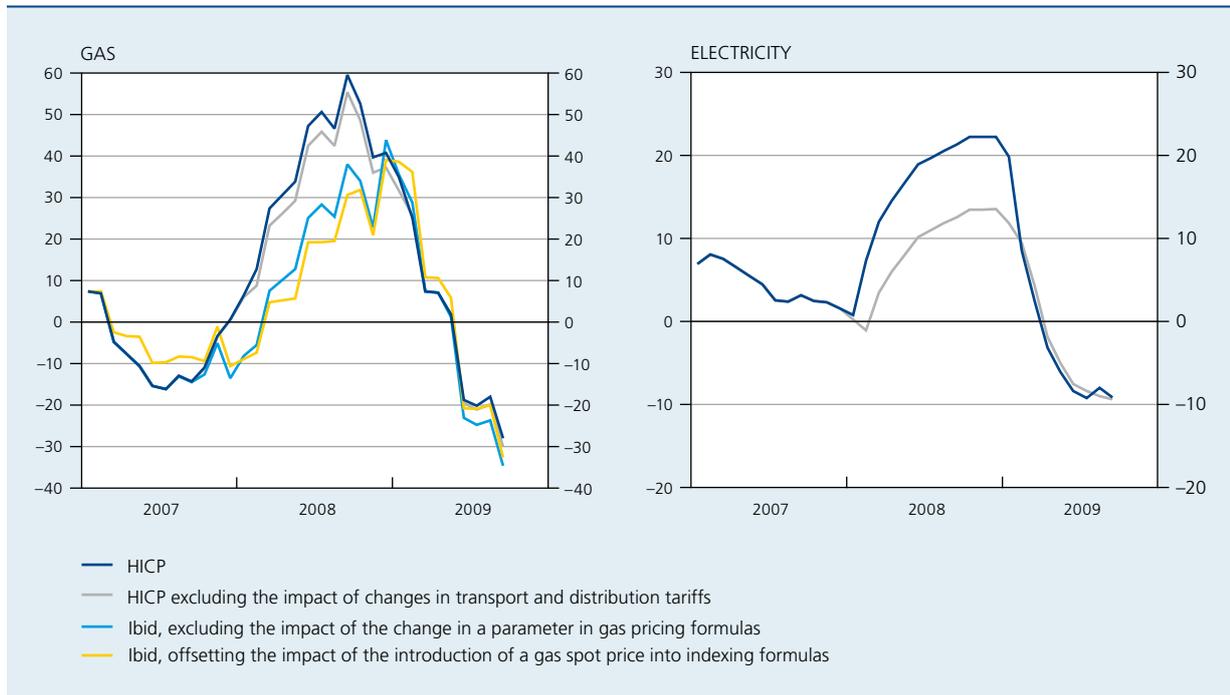
On top of the prices set by gas and electricity suppliers, there are transport costs and distribution tariffs. Because this segment of the market is still subject to a monopoly, billing items related to transport and distribution fall within the competence of the CREG. Transport costs and distribution tariffs rose significantly at the start of 2008. These increases followed on the heels of earlier reductions imposed by the CREG. Those decreases were motivated by the CREG's view that tariffs at the time were inappropriate. Its justification was challenged in court, which ruled against the CREG in late 2007. As a result, tariffs were raised significantly in early 2008, effectively undoing the earlier cuts. Distribution tariffs were raised still further in 2009. Initially announced for the start of the year, their effective application was delayed by the actions of the CREG, which also limited the size of the adjustments relative to distributors' initial demands. The new distribution tariffs were finally applied in July in Flanders and October in Wallonia and Brussels.

Lastly, consumer gas and electricity prices include VAT and a series of specific taxes and withholdings. With the exception of VAT, most of these taxes are fixed sums. Their set amounts, determined by public authorities, do not necessarily follow movements in the prices of the other components of consumer gas and electricity prices.

It is therefore possible to identify three changes in gas and electricity consumer price-fixing in Belgium since January 2007 – increases in transport and distribution tariffs in 2008 and 2009, the change of a parameter in gas pricing formulas in October 2007, and the introduction of a spot price into these formulas in January 2007 – and to evaluate their impact on price trends and price volatility. The impact of first two factors in terms of inflation is temporary but significant. The effect of increasing the constant term in gas pricing formulas may be estimated to be around 14 p.c. on average over the 12 months from end-2007 to end-2008. The impact of the increase in transport and distribution tariffs on electricity prices may be estimated to be 8 p.c. between the start of 2008 and the start of 2009. In the case of gas, the increase in transport and distribution tariffs had a lesser impact. These effects, moreover, are permanent with respect to price levels and thus a source of asymmetry because they will not return to their previous levels, even if energy prices decline on international markets, as has been the case since summer 2008. As for the inclusion of natural gas spot prices, this speeds up the transmission of energy commodity price fluctuations to consumer gas prices and makes them permanently more volatile. In effect, this factor led to bigger reductions in consumer prices in 2007 and 2009 and higher increases in 2008. However, the impact of this factor has remained limited by comparison

**CHART 3****ESTIMATED IMPACT OF CHANGES IN THE PRICE-SETTING IN BELGIUM SINCE JANUARY 2007**

(monthly HICP data, percentage change compared to the corresponding month of the previous year)



Sources: EC, NBB.

with the very pronounced movements in consumer natural gas prices during the period 2007-09.

Overall, these three factors clearly contributed to the increase in price volatility over the recent period. However, even taking them into account, price movements remain much more volatile in Belgium than in the euro area. Furthermore, the excessive volatility was already present before 2007. This much is clear when Belgium is compared with the euro area using data constructed according to a homogeneous methodology. Given the methodology changes that have affected the two most relevant databases (see above), such a comparison requires the creation of a series that combines the two sources cited earlier: prices are based on Eurostat's Energy Statistics – which reflect monthly tariffs – up to 2006 and then on changes in the HICP – which, as seen earlier, reflects monthly tariffs from that date forward in Belgium, while this was already the case in the other countries. At the HICP level, this excessive volatility was offset in the past by the recording method used in Belgium, which as shown earlier was atypical and tended to smooth out price movements.

A key determinant of consumer price volatility is the price of energy as a raw material, i.e. the price in euro of a barrel of Brent crude oil. There are indeed indications

that the price of gas follows that of the Brent benchmark crude with a lag, and that Belgium tends to react both more rapidly and more strongly than the euro area, even prior to 2007. After 2007, Belgian prices, even adjusted to take into account the changes in pricing that occurred in the interval, appear to fluctuate to a much greater extent than what may have been expected given the movements in Brent crude prices. In this respect, it is important to bear in mind the fact that the transmission of a change in Brent crude prices to natural gas prices depends on the oil price level. The transmission is more pronounced when oil prices are high (as in 2008) because the energy component's contribution to consumer prices increases automatically with the price of Brent. However, this factor should also play a role in the euro area, although undoubtedly to a lesser extent, because the weaker volatility observed for the region prior to 2007 appears to indicate that the initial proportion of the energy component there is weaker than in Belgium.

The connection between the price of electricity and the price of crude oil is much less apparent than in the case of natural gas because numerous energy products can be used to generate electricity. However, electricity price changes were still more volatile in Belgium than in the euro area throughout the period in question. This was

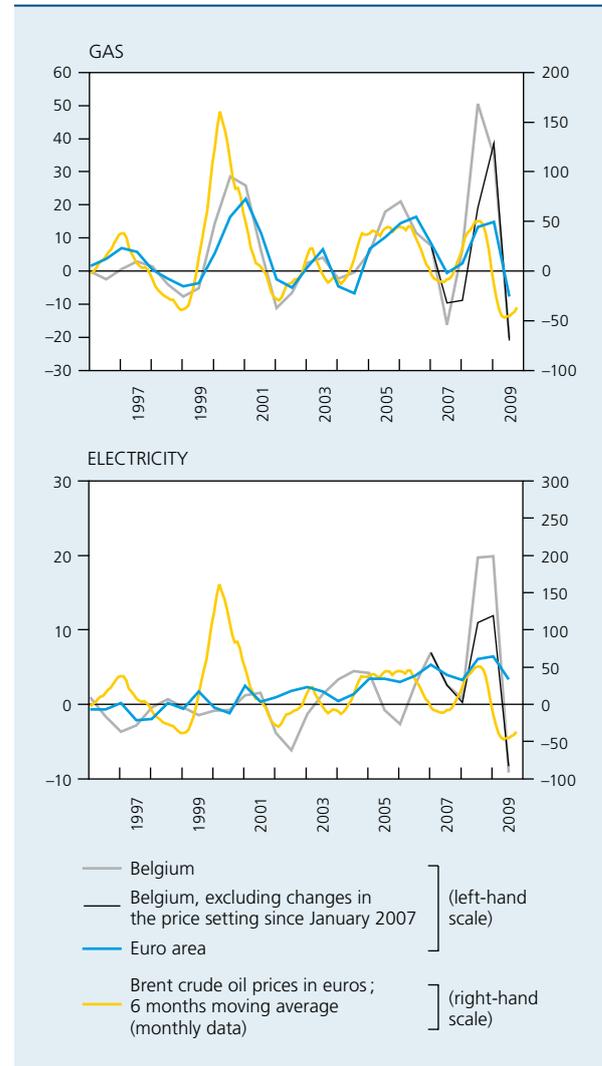
certainly the case between 2007 and 2009, even disregarding the spike in transport and distribution tariffs. Here again, it appears that the share of the more volatile energy components in consumer electricity prices is more significant in Belgium than in the euro area. This could indicate differences in the structure of production, but the impact of any differences on pricing should have diminished in recent years due to the liberalisation of the electricity market and, in particular, to the growing inter-connection among previously basically national networks.

However, the greater volatility of consumer gas and electricity prices in Belgium appears to be symmetrical throughout the period 1996-2009. Whereas prices in Belgium tend to rise more quickly during certain periods, they also fall more quickly during other periods, such that the differential between price trends in Belgium and the euro area is roughly the same during periods of rising and falling prices. This observation is not surprising, given that indexing formulas in Belgium, in principle, function completely symmetrically. The only sources of asymmetry are periodic interventions, such as the revision of natural gas pricing formulas in October 2007 or the increase in transport and distribution tariffs in 2008 and 2009.

At this point, the available data do not allow us to explain satisfactorily the greater price volatility in Belgium. One explanatory factor that is relatively easy to verify, may be the significance of fixed or set components of gas and electricity prices. The volatility of these prices is, in effect, inversely proportional to the size of these components. A particularly low level in Belgium, if confirmed, would help explain the particularly high volatility it has experienced<sup>(1)</sup>. There are two types of fixed component, fixed taxes and network tariffs (transport and distribution). However, information on the latter is not easy to obtain and there is no series that allows a comparison of trends in transport and distribution tariffs in different countries over time. For gas, information is only available for 2007, and for electricity the most complete information available concerns 2008. In the case of gas – 2007, in other words – the sum of the fixed taxes and network tariffs is relatively low in Belgium compared with the rest of the countries surveyed. However, if we limit the comparison to the three neighbouring countries, it emerges that the level is only low compared with the Netherlands. It is comparable to that of Germany and significantly higher than in France. Thus, this factor does not satisfactorily explain the higher degree of volatility relative to Germany and France. In the case of electricity, the data relate to 2008, but for Belgium they are adjusted to offset the effect that the steep increase in transport and distribution tariffs in early 2008 had on the country's relative position. While it is true that this increase will reduce the volatility of Belgian

**CHART 4** GAS AND ELECTRICITY PRICES: COMPARISON WITH THE EURO AREA USING A HOMOGENEOUS METHODOLOGY<sup>(1)</sup>

(half-yearly data, percentage change compared to the corresponding period of the previous year)



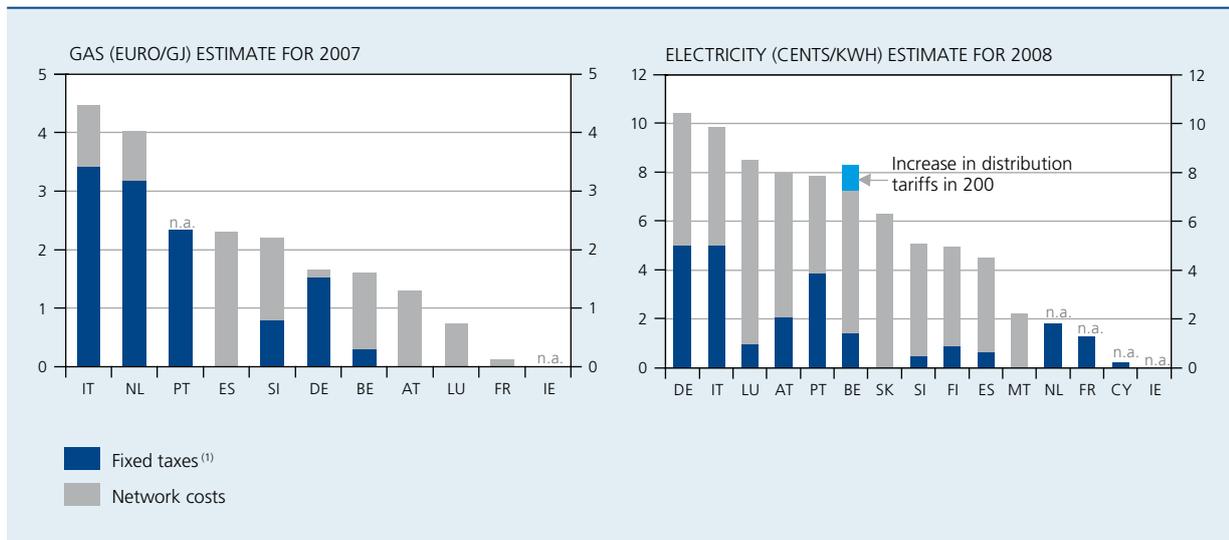
Sources: EC, NBB.

(1) Series constructed to reflect monthly tariffs for the entire period: Eurostat Energy Statistics up to 2006, HICP from 2006 onwards.

prices somewhat in the future (after having a temporarily upward impact), it would be incorrect to include this increase in the factors that would have reduced volatility in the past. Even after this type of correction, the sum of fixed or set components is not particularly low in Belgium, although it is lower than in Germany. However, it is worth noting that with respect to electricity, information on network tariffs is lacking for France and the Netherlands. Overall, it does not appear that the level of fixed pricing

(1) For example, in the case of diesel and heating oil, fixed taxes (excise duties) in Belgium are on average lower than in the euro area. The result is that the CPI for petroleum products reacts more strongly to fluctuations in international Brent crude oil prices.

**CHART 5** NETWORK COSTS AND FIXED TAXES



Sources: EC, NBB.  
 (1) Difference between prices excluding tax and prices excluding VAT in Eurostat "Energy Statistics".

components is particularly low in Belgium, meaning that this does not constitute a significant factor in explaining Belgium's higher volatility.

The question remains, thus, of what economic factor explains the greater fluctuation in consumer gas and electricity prices. This would require a more in-depth study, focusing notably on the pertinence of indexing formulas. In the absence of a clear and transparent motivation for the formulas used, it is difficult to determine if the indexing formulas being applied are entirely consistent with real trends in underlying cost factors.

#### 4. Implications in terms of price levels

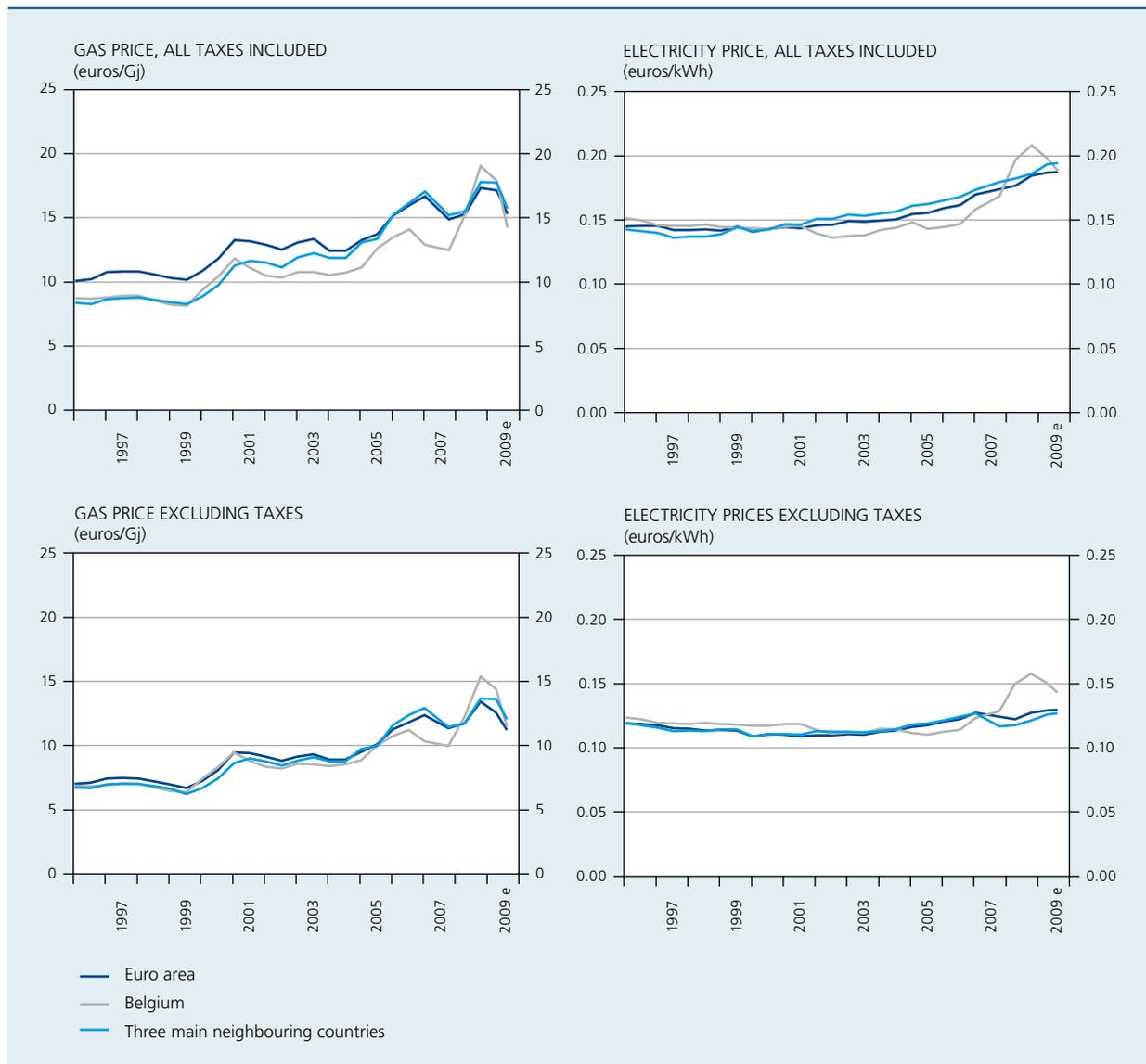
This section presents an international comparison of the prices paid by consumers for gas and electricity. Such a comparison constitutes an additional viewpoint on volatility, because the analysis presented until this point has focused solely on price movements, and not price levels. The fact that consumer gas and electricity prices are more volatile does not necessarily imply that they are also higher, especially since we have seen that in Belgium, the additional volatility was generally symmetrical. To analyse prices, data are taken from the Eurostat Energy Statistics database – even though they are affected by a methodology change starting in 2007 (see above). Furthermore, as a general rule, data are not yet available for 2009. And yet, ending the comparison in 2008

– at the energy price peak – would excessively penalise Belgium because since then gas and electricity prices have fallen there more than elsewhere. As a result, price levels for 2009 have been estimated based on the levels observed in 2008 and price changes between 2008 and 2009 as reported in the HICP. Furthermore, due to the lack of data for the final quarter of the year, only an estimate based on third quarter figures is available. Given that gas and electricity prices undoubtedly reached their low point during that quarter, this approach tends to favour Belgium's relative position.

With respect to gas, prices including all taxes in Belgium had been lower than in the euro area since the start of 1996 and lower than in the three main neighbouring countries since 2001. This price gap widened in 2007 before disappearing completely in 2008, to the point that prices in Belgium exceeded those of the reference areas. In the second half of 2009, prices dropped back below the average of the other countries. The situation with respect to electricity prices, including all taxes, is fairly similar. Since 2002 prices in Belgium have been lower than in the two reference areas, but from 2008, Belgian prices clearly exceeded those of the other countries before apparently dropping back to a level close to those of the two reference areas in the second half of 2009.

By neutralising the impact of taxation, the international comparison of prices excluding tax helps discern the characteristics of price-setting methods and market

CHART 6 COMPARISON OF GAS AND ELECTRICITY PRICE LEVELS <sup>(1)</sup>



Sources: EC, NBB.

(1) Price levels per 2009 were estimated using the 2008 levels and the price change between 2008 and 2009 according to the HICP. In addition, due to a lack of data for the fourth quarter of 2009, only an estimate based on third-quarter figures was available.

functioning. In this respect, the level of prices excluding tax was in the past fairly similar in Belgium, the three main neighbouring countries, and the euro area. Belgium's relatively favourable ranking in terms of prices including all taxes was thus principally the result of lower taxes on gas and electricity consumption. Over the recent period, however, prices excluding tax in Belgium have risen significantly to a level well above average, before dropping back down in line with the average in 2009, although the drop did not entirely erase the previous increase. For electricity, pre-tax prices are estimated to remain significantly higher than in the two reference areas, by around 10 p.c.

By contrast, gas prices excluding tax would appear to be on a par with the euro area average at the end of the period, and could actually be slightly lower than those of the three main neighbouring countries.

Overall, the increased volatility of price fluctuations observed recently has gone hand in hand with a deterioration in the price differential relative to neighbouring countries and to the euro area average. This deterioration tended to taper off late in the period, but prices did not return to a level at which the differential relative to the euro area would be comparable with the previous

period. The analysis presented in section 3 showed that certain price increases – the change of a parameter in gas pricing formulas and the increase in transport and distribution tariffs – are permanent in nature and completely independent of energy price trends on the international market. Furthermore, since spring 2009, energy commodity prices have risen again and this trend will be reflected with a certain lag in consumer gas and electricity prices. It is likely that the transmission of this new upward impetus will again be more pronounced in Belgium, such that its positioning in the international comparison could weaken still further in the near future. The deterioration will be even more marked in the event of a sustained upward trend in energy commodity prices.

## 5. Conclusion

Over the past three years, it has gradually become clear that consumer gas and electricity prices in Belgium are much more volatile than in the three main neighbouring countries or in the euro area as a whole. Initially, it could not be established on the basis of recorded price movements whether this higher volatility just pointed to a more rapid (but not necessarily more intensive) transmission of trends in energy commodity prices on international markets, or whether it also reflected a greater total extent of such transmission. Answering that question was further complicated by the fact that the method for recording gas and electricity prices in the Belgian consumer price index was changed at the beginning of 2007 from a registration on the basis of annual invoices to one based on monthly tariffs. Such a change incontestably speeds up the transmission of the recorded price movements compared with the previous method and could also be a source of difference compared with the three main neighbouring countries or the euro area.

This article first looks at whether this methodology change is an explanatory factor for the differing movements in gas and electricity prices. The analysis demonstrates clearly that this is not the case. On the contrary, the methodology change brought Belgium into line with what has long been the prevailing practice in the reference countries. Previous research in this area, both by the Bank and by other research institutes, was unable to arrive at an unequivocal conclusion regarding the role of the methodology change. This is an important outcome because it implies that the price movements recorded in the CPI and deviations in these movements from those in the reference areas may be attributed to the pricing itself. Furthermore, the availability of additional data – more specifically the fact that gas and electricity prices fell in 2009 following a sharp increase in 2008 – clearly shows

that it is not so much that price changes are passed on more rapidly in Belgium, but that movements in gas and electricity prices are actually characterised by a greater volatility.

From the second part of the analysis, it emerges that several changes in price-setting since the full liberalisation of the residential gas and electricity market on 1 January 2007 (changes that cannot necessarily be related directly to that liberalisation) caused higher volatility over the period 2007-09. In this respect, the October 2007 change in the pricing formula of the principal gas supplier – followed by changes at most of the other suppliers – and the January 2008 increase in network tariffs played the most decisive roles. These two factors also explain why the gas and electricity prices recorded in the third quarter of 2009 did not return to exactly the same level as before the sharp increase in the second half of 2007, even though they declined considerably. Nevertheless, it would be difficult to say that these are factors in a structural increase in the volatility of gas and electricity prices. Conversely, this could be said of the introduction of a spot price into the pricing formulas for gas. However, it appears that the spot price has not had a substantial impact during the period under review. Based on the elements presented in this article, it can also be shown that applying the pricing formulas in force before liberalisation would have also resulted in greater gas and electricity price volatility in Belgium. In the past, the impact of this volatility on the CPI was lessened by the methodology used at the time, and it was in any case more limited given that, with a structurally lower level of commodity prices, their relative importance in consumer gas and electricity prices was smaller.

Furthermore, an international comparison of gas and electricity prices excluding tax – the most pertinent measure when assessing the consequences of pricing and market functioning – reveals that the prices applied in Belgium in 2008 were significantly higher than those observed in the euro area, which had not previously been the case. For gas, this handicap likely disappeared again in the third quarter of 2009, whereas the available indicators show that the gap remains substantial in the case of electricity, despite some narrowing. It should also be noted that gas and electricity prices may have bottomed out in the third quarter of 2009 and were not yet being affected by the rise in energy commodity prices since spring 2009. Due to the transmission (more substantial in Belgium) of the new upward momentum, the country's relative position could well deteriorate in the near future. Assuming pricing remains unchanged, the deterioration would be aggravated if energy commodity price movements resume their sustained upward trend in the coming years.

The conclusions of this article have two important implications for containing price and cost movements in Belgium and, by extension, for safeguarding the country's competitive position.

In the first place, with respect to gas and electricity pricing, it needs to be established to what extent the pricing formulas used are an accurate reflection of the actual cost movements. It is still open to question which economic factor explains why fluctuations in energy commodity prices have a greater impact on consumer gas and electricity prices in Belgium than in the euro area or in the three main neighbouring countries. Recorded price movements appear to indicate that the weight of energy commodities in consumer gas and electricity prices is notably higher in Belgium than in the reference areas, but this needs to be verified. The contribution of energy commodities may be more important in Belgium if fixed taxes and network tariffs, for example, were considerably lower but, based on the information presented in this article, that does not exactly appear to be the case. Further investigation into this subject is therefore advisable, but will not be easy to carry out given the quite technical nature of the issue and the fact that not all of the relevant data pertaining to cost structures are published. In addition, the higher volatility of gas and electricity prices is also a factor that has to be taken into account when containing general price and cost movements, especially in a situation with energy prices on a structural upward trend.