Energy Policy 52 (2013) 199–212

Contents lists available at SciVerse ScienceDirect

Energy Policy

journal homepage: www.elsevier.com/locate/enpol

Main drivers of natural gas prices in the Czech Republic after the market liberalisation

Monika Slabá *, Petr Gapko, Andrea Klimešová

Charles University, Prague, Faculty of Social Sciences, Institute of Economic Studies, Opletalova 26, 110 00 Praha 1, Czech Republic

HIGHLIGHTS

- We deal with gas pricing in the Czech Republic after liberalisation/unbundling.
- The TSO, DSO price components have increased, the SSO price component has decreased.
- Commodity price for Households started to relate to hub prices.
- Commodity price for Corporates remained oil-linked, however discounts were provided.
- Only some Corporates experienced savings in total purchasing costs of gas.

ARTICLE INFO

Article history:
Received 7 November 2011
Accepted 20 August 2012
Available online 26 October 2012

Keywords:
Gas pricing
Liberalisation
Czech Republic

ABSTRACT

One of the goals of the European Commission in the energy sector is creating a single competitive European market. The decision to liberalise energy markets has far-reaching consequences not only for gas companies, but also for the rest of the real economy in view of the fact that natural gas is being used as an important primary energy source in several sectors of production and in the power industry.

We aim to answer how liberalisation/unbundling has influenced gas pricing/prices in the Czech Republic. We investigate the individual components of end-customer gas prices according to the value chain and we define and structure the drivers of these components.

We use a case study from the Czech Republic, one of the Central and Eastern European countries, which, contrary to the old Member States, is buying most of its gas from one supplier (high import dependence and low supply diversity) and where the transmission and distribution network is characterised by a sufficient contractual and physical capacity. We stress that next to basic conditions on the European gas market (import dependency on external gas producers) legal and institutional conditions and the initial market structure of each Member State are also important for the results of the liberalisation.

1. Introduction

The EU as a whole depends on imports from an oligopoly of important gas producers. It imports some 60% of its annual consumption, mainly from super-giant fields in Russia—23% of the EU's annual consumption, Norway—16%, Algeria—10% and from further sources covering no more than 2% of annual consumption each. The import dependency of the EU-27 is expected to increase to 74% by 2030. Within the EU, only the Netherlands and Great Britain have their own gas sources worth mentioning (accompanying document to EC, 2010, pp. 40). On the other hand the Central and Eastern European countries of Estonia, Latvia, Lithuania, the Czech Republic, Slovakia, Poland, Hungary and Slovenia import the most or their total consumption only or mainly from Russia (World Energy Council, 2003).

Until recently, the prices of natural gas imported to continental Europe were based on long-term take-or-pay contracts.[1] They were determined by the price development of gas substitutes such as heating oils, etc.[2] To exclude potential arbitrage by the buyers, import contracts often contained a destination clause: the use of gas was restrained to the destined market for which it was priced.

In the 1990s, a discussion between theoretical and practical economists took place with regards to increasing the effectiveness

[1] High investments in the giant production fields and also in the long pipeline system between the gas reserves and distant consumer markets resulted in large import contracts often in an order of 5–10 Bcm/year with a duration of 20 years or more and with take-or-pay obligations both in gas supply and transit arrangements (Energy Charter Secretariat, 2007).

[2] The applied price formulas are often based on the net back principle: gas is priced in relation to its substitutes in particular sector (gas oil, heavy fuel oil or sometimes crude oil) so that there are just enough incentives over competitive fuels to use it (the replacement value) and then it is netted back to the respective country by deducing the transportation costs in between.

* Corresponding author. Tel.: +420 77 4177583.
E-mail address: monika.slaba@yahoo.com (M. Slabá).

0301-4215/$ - see front matter © 2012 Elsevier Ltd. All rights reserved.
http://dx.doi.org/10.1016/j.enpol.2012.08.046

of European natural gas utilities. Suggestions for privatisation and liberalisation were made (Midtun, 1997, 2001; Vickers and Yarrow, 1988; Newbery, 2001a,c; Glachant and Finon, 2003) as well as suggestions to enforce the free access of third parties to gas networks (Glachant, 1998; Glachant, 2003; Glachant and Finon, 2004; Finon and Midttun, 2004).

In 1998 the European Union started reforms of the gas market. With the acceptance of Directive 98/30/EC, the European Union decided to open up the national gas markets to competition. The *liberalisation* of the gas sector and utilising the integrated pan-European network became a means of reaching *the single European market* in natural gas. The EU defined *unbundling*[3] as the primary means of originally vertically integrated market liberalisation.

Natural gas prices were expected to be *de-coupled* from oil prices; instead they should be *determined by the interaction of gas supply and demand* on newly established stock exchanges and secondary markets. They should be *pushed down* by the competition between shippers/traders/suppliers.[4]

Until 2008 market liberalisation in Continental Europe has not been able to push prices down.[5] Although spot markets and financial markets for energy derivatives have been developed, they were not sufficiently liquid[6] and gas pricing remained mostly determined by long-term contracts. Yet in 2007 wholesale gas prices in most Member States remained similar, often competing offers on the retail market were unavailable or were too similar to amount to consumer switching.[7]

However, in 2009 the competition between European suppliers intensified, supported by the international financial and later economic crisis, which resulted in a significant fall in the consumption of natural gas. Liberalisation of several national energy markets and new long-distance transport options (LNG) has rapidly improved the world wide integration of natural gas markets. This in combination with a re-orientation of the domestic U.S. natural gas production (intensive development of unconventional resources) resulted in a remarkable worldwide oversupply. New opportunities emerged from that for European power exchanges where more gas has been available at prices lower than the prices based on long-term contracts. This put pressure on European importers and recently we can see a combination of oil-linked formula and market-pricing being introduced in long-term import and/or supply contracts (E.ON, ENI, Botas).

The goal of this article is to answer the question of how liberalisation influenced gas pricing/prices in the Czech Republic. With regards to the methodology, and contrary to other authors, our contribution is in the perspectives we apply:

We use a case study from the *Czech Republic*, one of the Central and Eastern European countries, which, contrary to the old Member States, are buying most of their gas from one supplier (high import dependence, low supply diversity).

We provide the reader with a structural analysis in order to present the most important drivers of natural gas prices after the market liberalisation/unbundling. Within the *Structure-conduct-performance scheme* we take the individual components of the end-customer price according to the value chain as a performance indicator (i.e. the price of the imported commodity, of transmission, distribution and storage activities, the price of wholesale/retail supply activities) and we *define and structure the drivers of* these *individual price components.*

2. The literature review and theoretical background

In this part of our article we summarise in which ways natural gas prices have been examined in theoretical and empirical sources (we divide them into three basic groups) and we introduce the methodology we adopt in our paper.

The first group of literature concentrates on *gas prices after European liberalisation*. We have found different and opposite meanings in different sources:

The Energy Charter Secretariat (2007) explains the continuing differences in market structures, pricing mechanisms and liquidity between the regional gas markets of North America/United Kingdom vs. Continental Europe after the liberalisation. They conclude that these differences are not only a question of sector reform, but have something to do with supply structure and import dependency: (1) *The North American, and to a lesser extent the UK, gas market* has developed into a liquid spot and futures commodity market (hubs churn 100) with many players, where gas prices are no longer contractually pegged to heating oil prices.[8] This happened on the basis of domestic upstream competition (their own resources from multiple small- and medium-sized gas fields) and because the regulatory authorities had leverage on its natural gas supply over both upstream and downstream. (2) On the other hand, *national gas markets in continental Europe* developed on the basis of gas imported from a few super-giant fields in Russia, Norway and Algeria. The EU has no regulatory impact on the oligopoly upstream (the main EU suppliers are outside the EU's regulatory space). Consequently there are only few strong players, a few industry hubs with relatively low liquidity (churn < 10); long-term contracts with oil prices as reference in the price formula still dominate.

Brakman et al. (2009) cover the reasons for the potentially negative effects of liberalisation within the EU. They argue that the fact prices are determined in residual markets where the least efficient firms are active, is more likely to lead to price increases, rather than decreases.

Iimi (2003), Bjoerkroth et al. (2006) and Pollitt (2007) point out two effects of unbundling and liberalisation. They stress that the benefits of introducing competition should be compared to the loss of synergies, which could emerge after the unbundling of vertically integrated energy utilities (VIU). Other authors warning of before-price increases due to the loss of synergies and/or other additional costs connected with unbundling are, e.g. Hattori and

[3] (*1) The area of the "commercial activities" of gas import and supply was decided to be liberalised*. From liberalisation, the EU expects that new shippers/traders/suppliers (including international players) will enter the wholesale/retail market, and customers will be eligible to choose one where the products, services and prices suit them. (*2) The area of naturally monopolistic network activities was designed to be regulated and harmonised.* The EU has formed independent national and supranational regulatory bodies, which set down the rules of fair access and transparent price setting with regards to transmission/distribution system operators (TSO, DSO). The EU anticipates that unbundled operators will secure fair access for competing shippers/traders/suppliers to the infrastructure.

[4] European Commission (2000b, p. 1): "Empowering the customer through customer choice will give rise to many effects, as it puts pressure on all operators along the gas chain to improve customer service, cut costs and reduce prices. Opportunities for new entrants into the gas market will increase this pressure to the advantage of customers."

[5] For the percentage increase in prices see the benchmarking reports of the European Commission (2008, p. 6, incl. Accompanying document pp. 25–27), European Commission (2009, pp. 8–10).

[6] Although traded volumes in gas hubs increased from 40 billion m^3 in 2003 to 120 billion m^3 in 2007, the physical volumes delivered at most of the hubs are still relatively low compared to the total consumption in their markets (see the benchmarking report of European Commission (2009, pp. 4, 5)).

[7] See the benchmarking reports of European Commission (2005a, p. 8), European Commission (2007d), European Commission (2008, p. 8) and Kroes (2007b).

[8] But rather, follow their development due to substitution effects (above all dual-fired power plants make the demand elastic).