EUROPEAN NATURAL GAS MARKETS LIBERALISATION: REGULATORY REGIMES AND THEIR IMPACT ON INVESTMENTS

Nadine Haase
Address: University of Twente/CSTM, P.O. Box 217, 7500 AE Enschede, The Netherlands,
Phone: +31 53 489 4716, e-mail: n.haase@utwente.nl

(1) Overview

The European natural gas sector has undergone profound restructuring processes during the past ten years. New regulatory regimes are evolving to liberalise European natural gas markets, but progress and the effects of these reforms have fallen behind expectations. In 2005, the European Commission reported severe malfunctions such as market concentration, lack of liquidity in the gas market, insufficient market integration and harmonisation (European Commission, 2005). Due to the huge cumulative need for gas investments in the EU-15 countries, coupled with energy blackouts, concerns about the security of gas supplies[1] have grown in importance on the political agenda[2]. Therefore, both opponents and proponents of European gas market liberalisation are questioning whether the regulatory regimes in European energy markets are adequate to ensure sufficient investment. In addressing this issue, the recent political and academic debate on restructuring energy utilities can be divided into two strands. One strand searches for optimal market designs, emphasising the bundle of regulatory instruments and the importance of independent regulators (Stern, 2007). The other strand considers the likely impact of specific regulatory instruments, such as incentive regulations, on investment in the energy sector (Burns & Riechmann, 2004; von Hirschhausen, Bechers, & Brenck, 2004). Although the analysis of specific forms of incentive regulation such as price caps, rate of return or yardstick regulation, and their possible impact on business behaviour with regard to investments, provides useful insights that could lead to improved regulation, the effect of regulation on investment in natural gas markets has hardly been researched. Surprisingly, the levels of investment in the European transmission system, and any changes due to liberalisation, have not been empirically substantiated through comparable data. This paper sets out to determine whether a causal relationship between regulation and investment in the gas transmission system can be empirically verified for the EU-15.

(2) Method

Essentially, the research strives to find a correlation between regulation and investment by conducting an econometric analysis. This involves the assessment of regulatory regimes and investments before and during the period of European gas market liberalisation - suggesting a timeframe of between 2000 and 2005. The analysis covers the old member states but excludes Greece, Portugal and Finland who were granted exemptions from the European Gas Directives. A bottom-up-approach is used to assess how much has still to be done to achieve best-practice levels in European gas markets (Haase, forthcoming). For this purpose, three idealised models are formulated on the basis of European legal provisions and general neoclassical economic theory. Operationalisation is based on the application of two concepts: the concept of policy convergence and the concept of regulatory comprehensiveness. The former evolved within the European comparative policy literature, and the latter stems from the public regulation theory of neo-institutional origin. The applied methodology enables one to formulate an index that measures and compares the member states' regulatory regimes to best practice. In gathering investment data on natural gas transmission networks, primary and secondary sources of private and public organisations have been used.

---

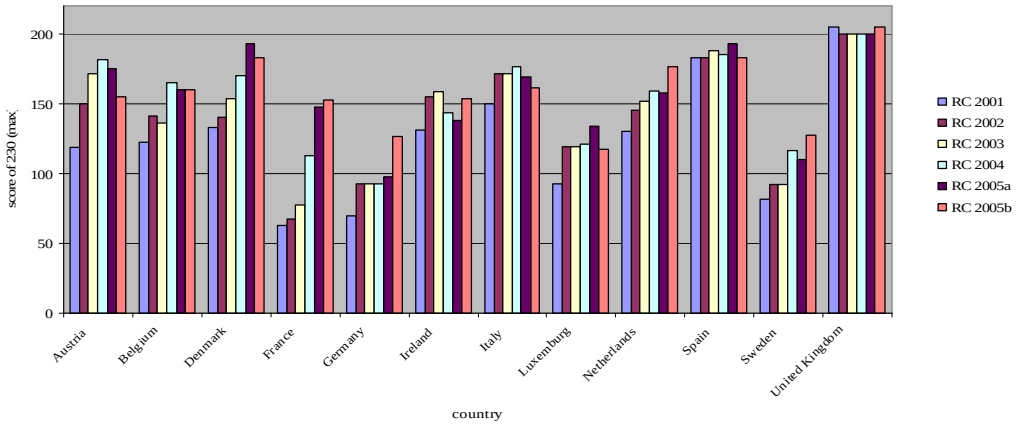
[1] Security of supply is often reduced to a buzzword or a black-box concept. Here it is defined "as the guarantee that all the gas volumes, demanded by non-interruptible (firm or protected) customers, will be available at a reasonable price." (Luciani, 2004)

[2] According to the World Energy Investment Outlook, the total gas sector investment needed in OECD Europe, projected over the period 2001-2030, amounts to $465 billion, or almost $16 billion per year (IEA 2003:266). In considering alternative and reference scenarios, estimated cumulative gas investments in EU-15 countries amounted to: distribution $85-95 billion, transmission $50-75 billion, storage $10-15 billion, LNG regasification $15-20 billion. (IEA 2003: 271)

(3) Results

While the regulatory regimes in the twelve EU countries considered can be assessed, there is insufficient comparable data describing investments in natural gas transmission networks, before and after the sector's liberalisation, publicly available to allow their influence to be evaluated. However, it is shown that regulatory regimes have converged, albeit only moderately, towards best practice between 2000 and the end of 2005. The distance to go to achieve best practice (equating to a score of 230) remains considerable, as the figure below demonstrates.

Figure 1: Regulatory comprehensiveness (2000-2005b)



Assessing investments in the gas sector poses two problems. Firstly, comparable investment data for natural gas transmission networks in the 12 countries is simply not available for the required periods. Natural gas utilities tend only to publish overall investment totals, and chose not to distinguish, at least publicly, between upstream and downstream areas, or to separate out investments in distribution and transmission systems. Secondly, even if data were more widely available, as is the case in the UK, the figures may well be confounded by issues outside the regulatory regime in place. For example, investments in networks and import facilities tend to be cyclical and, consequently, changes in investment levels from one year to the next may be dominated by investments related to the stage reached in some cycles rather than a response to a regulatory-driven change.

(4) Conclusions

Due to the organisation of the European market prior to liberalisation, investment levels in the natural gas sector in general, and in transmission systems in particular, are not sufficiently transparent to allow a systematic comparison. Figures on investment tend to be misleading in the sense that they reflect ongoing developments. Consequently, the effect of regulatory regimes on investment in the gas sector as a whole cannot be scientifically verified using the proposed methodology. Instead, it is suggested that qualitative case study research might be more fruitful in generating some useful insights.

References

Burns, P., & Riechmann, C. (2004). Regulatory instruments and investment behaviour. *Utility Policy, 12*, 211-219.

European Commission. (2005). *Energy Sector Inquiry. Issues Paper*. Retrieved. from http://ec.europa.eu/comm/competition/sectors/energy/inquiry/issues_paper15112005.pdf.

Haase, N. (forthcoming). European gas market liberalisation: are regulatory regimes moving towards convergence? *Oxford Institute for Energy Studies*, pp. 147.

Luciani, G. (2004). Security of Supply for Natural Gas Markets. What is it and what is it not? *INDES Working Papers, 2*(March 2004), 16.

Stern, J. (2007). Infrastructure regulatory institutions and their impact: Papers from CCRP, University Workshop 2006. *Utility Policy, 15*, 161-164.

von Hirschhausen, C., Bechers, T., & Brenck, A. (2004). Infrastructure regulation and investment for the long-term - an introduction. *Utilities Policy, 12*(203-210).