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Mary Thompson and John Smith

ENERGY CARRIER'S DEMAND IN THE WORLD AND MAIN CONSUMING REGIONS

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Overview

As security of gas supply raises serious concerns, strategies against disruption are becoming of crucial importance in Europe. By diversifying the risk of disruption and financing pipeline construction, long-term contracts with producers are the primary supply instruments. Security of supply targets can also be met by increasing system flexibility (fuel switching, interruptible contracts, cross-border pipeline capacity and liquid spot markets). However, these mechanisms have a limited capacity to absorb shocks that would endanger all the European countries at the same time (accident, civil war or terrorist attack). To ensure uninterrupted services in the short-medium term, precautionary gas storage is indispensable.

Method

In brief, the evaluation of the impact of policies and measures (P&Ms) is carried out by measuring the impact of a “Policy scenario” with respect to a “Reference” case within a scenario covering the period 2005 – 2050. The “Reference” is defined as a simulation in which the energy demand trend is calculated by taking into account the main energy consumption drivers (e.g. the demography and social drivers as measured by the number of households). It includes possible saturation trends in the drivers, and the (residual) impact of energy saving measures implemented before a certain reference year (the year from which the impact simulation exercise starts (i.e. 2005). The “Policy scenario” refers to a scenario in which the energy demand development takes into account additional energy saving measures implemented (or even planned) after the respective reference year.

Results

The econometric model that we propose enables to estimate stable and significant short-run relationships between oil prices and sectoral economic indicators. Nonetheless, given the long-term variability of both the sectoral energy intensities and the shares of each sector in the economy, the simulated impact on aggregate GDP change over time, which explains the tendential weakening of the relationship noted in many studies. According to the values of the structural parameters in the model, the elasticities that we get cover the whole range of the published elasticities. In the long-term situation of 1998 (which is the most recent date where the sectoral data needed are available), our elasticity is –3.6%.

The evaluation of the short-run economic effects of long-run oil price changes still deserves further study. Nonetheless, our preliminary results indicate that the rise of the barrel price since 2004 could have a delayed impact on the US business cycle in 2007 and cause a deviation of about –0.8 percentage point from the base case.

Conclusions

With respect to sensitive crude oil markets and unexpected increase of crude oil prices (for example sudden increase in crude oil prices in 2006), increasing of crude oil consumption will not be rational. It seems that the main concern of countries will be to decrease of crude oil consumption and the best option is investing on other energy resources (non-fossil energy) like nuclear energy. Governments must adopt strategies and policies that in long term, the crude oil share in total energy consumption and country relying level on crude oil decreases.