

DESCRIPTION FOR THE GENERAL PUBLIC

Natural gas is the third most important energy source in the global and European economy, accounting for about a quarter of primary energy supply. Moreover, its relevance has increased steadily since the shale gas revolution and is projected to increase even further. The reasons behind the growing popularity of natural gas are that (i) it is cleaner than other fossil fuels, (ii) the highly elastic supply of energy from natural gas power plants is an excellent complement to highly volatile energy supply from renewable energy sources (RES) and (iii) it is increasingly accessible through the development of the liquefied natural gas (LNG) infrastructure and its competitive prices. For the above reasons natural gas has become an important element of energy policy at European and domestic level.

The structure of the European natural gas market has undergone several changes over the last decades. First, the development of electricity supply from RES has led to an increased demand for natural gas power plants. Secondly, the direction of natural gas imports has shifted from traditional suppliers (Russia, Norway and Algeria) towards LNG supplies from Qatar and the US. Third, there has been a steady growth of European gas hubs (e.g. TTF in the Netherlands and NBP in the United Kingdom) and there are projects to develop such hubs in the Central and Eastern Europe countries. Finally, decoupling of natural gas and oil prices, combined with a change in pricing mechanisms (a shift from long-term contracts towards gas-on-gas pricing) have been observed over the last two decades. In our opinion, all the above changes deserve an in-depth investigation, focused on price formation on the European natural gas market.

In project we plan to address these peculiarities. Our fundamental objective is to understand the determinants of natural gas prices both at a global scale as well as on local markets, while accounting for the interplay between these markets. In particular, we plan to start with a careful investigation of the dynamics of US natural gas market and consequently broaden our analysis by inspecting several European markets, including the Polish one. Toward this end, we plan to employ variants of state of the art dynamic econometric models. These frameworks will allow us to (i) precisely pin down the importance of demand and supply on the U.S. natural gas market and provide robust estimates of market elasticities, (ii) quantify to what extent is the European gas market dependent on the development on its counterpart in the US, (iii) how European natural gas markets are related to each other in the context of structural changes described in the previous paragraph and finally (iv) how the development of gas infrastructure in Europe affects the link among gas prices in European countries. The results of the study should help to understand price formation at global and local natural gas market and draw policy implications for European and Polish energy sector regarding the security of natural gas supply, the economic cost of imports and the role of natural gas in energy transition.