Equilibrium of Dutch natural gas market for thermal energy consumption in the built environment

An explorative equilibrium modelling approach

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Project description

This research project aims ***to develop an equilibrium model to understand and explore the current and near-future of natural gas prices in the Dutch built environment sector for thermal energy consumption purposes.*** *The current ongoing crisis in Eastern Europe has shown the heavy dependence of the European energy sector, particularly the built environment, on the Russian natural gas. The natural gas prices are drastically increasing, which influences directly on thermal energy consumption of Dutch households. Domestic thermal energy consumption is essential as it covers applications such as heating, cooling, bathing, and showering, 75% of households' non-transport related energy consumption. Therefore, understanding the influence of such a crisis on the energy market and domestic consumption is vital for further actions in the Dutch built environment. More specifically,* ***when and how the energy market will get to equilibrium in response to such a crisis would be essential for policy-makers and households.*** *Therefore, this study aims to develop an explorative equilibrium model to understand and explore the influence of such crises (and other similar ones) on the Dutch natural gas prices and energy market. This can be translated as (geo)political and economic factors impacting the energy market and the energy transition in the long term.* ***Therefore, the study could bring insights to policy-makers as economic and policy interventions for their decision-making processes for the (near) future (e.g. coming winter and spring).***

The research involves developing an explorative computer model (e.i. explorative equilibrium model) based on real-world data, developing scenarios, analysing the results and providing insights and recommendations. *For all these steps, close supervision and guidance will be provided. This research is in close collaboration with Delft University of Technology (i.e. Technology, Policy and Management faculty); therefore, the student assistant has an opportunity to collaborate with researchers outside Utrecht University (and Copernicus institute of sustainable development).*

Job requirements

A highly motivated student, Fluency in English, Experience with computer modelling is a must, Experience in equilibrium modelling or willingness to learn and develop such a skill is a must, and Experience in performing research on related topics (e.g. energy policy, geopolitics and economics) is a plus.