A comparison between the two balancing regimes of the natural gas market in the Netherlands

Catalin Bucura, MSc  
C.A.Bucura@tudelft.nl  

Zofia Lukszo, PhD  
Z.Lukszo@tudelft.nl

Focus

• Understand the Dutch gas market operation

• Study the behavior of shippers

• Compare the old (before 2011) and new (after 2011) balancing regime

Background

• September 2009 the third Gas Directive (2009/73/EC) aiming at increasing competition and efficiency, ensuring security of supply and freedom of choice of consumers at a fair price

• The physical amount that gets into the network must be equal to the amount that goes out (green zone), otherwise the network is out of balance (red zone)

• In the new regime, shippers' responsibility in balancing the network increased, whereas the TSO's decreased

Modeling approach

• ABM is used to map the players in the market as “agents” in the model, and to capture their behavior in decision rules

• In the model they are: 4 types of consumers, 4 suppliers, TSO, 10 shippers

Results and remarks

• The old regime did not provide enough information for stimulating shippers to participate actively in the market

• The new regime stimulates a more efficient network capacity utilization (i.e. for large overbooking all shippers pay penalties) but also challenges shippers in dealing with booking network capacity

Future work

• Model expansion via inclusion of LNG, storage and network capacity limitations

• Investigate different scenarios for booking the network capacity by the shippers

• Investigate in which sense shippers' operational decisions affect their long-term booking strategies

Paper UP3-3