



Challenges to the Future of European Single Market in Natural Gas

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The natural gas liberalisation process in Europe began with the 1991 Gas Transit Directive. This was then followed by the first two energy packages (1998 and 2003) and then by the Third Energy Package (2009) which aimed at creating a single pan-European market in gas. By 2016, gas prices in Europe had converged to the extent that locational price differentials approached marginal cost of transporting gas and hence arbitrage was saturated, which was perceived as a sign of a well-functioning pan-European wholesale gas commodity market. Passing the quarter century mark provides an opportunity to take stock of the evolution of the European gas industry, the effects of market liberalization and a sober look forward: '*quo vadis European gas market?*'.

The recent price convergence between hubs in North Western Europe is a result of structural changes both in the upstream as well as in downstream parts of the gas value chain: (i) general cost reduction along the value chain (especially in the LNG value chain), (ii) market liberalization, and (iii) uptake of renewable electricity generation. However, the price convergence between more liquid hubs in North Western Europe and less liquid hubs in Central, Eastern and Southern Europe (CESE) resulted from (i) renegotiations of oil-indexed contracts supplying markets in the CESE region, and (ii) a dramatic fall in crude oil prices after mid-2014.

Overall, the move towards a single market in gas, which is still ongoing, has allowed European consumers to benefit from transparently set market-based wholesale prices as well as from more intense competition. Structural changes in both the upstream and the downstream side of the European gas markets coupled with regulatory changes allowed a smooth transition from a gas system relying on rigid bilateral oil-indexed long-term sales contracts to a healthy and competitive wholesale gas markets. However, as the gas market in Europe matures and with the increased penetration of renewable energy generation in the electricity sector as well as overall decarbonization of the energy sector in Europe, the gas market and its associated regulatory regime faces a number of challenges.

A principal reason that locational price spreads between different European gas hubs are below cross-border transport tariffs is because suppliers and shippers hold long-term transport capacity bookings and regard them as sunk costs. Therefore, existing cross-border gas trade in Europe is largely influenced by short-run marginal cost of moving gas between hubs and hence achieving great price convergence. In the process of liberalization and unbundling of network activities from competitive activities, national authorities and incumbent gas suppliers have agreed to book on a long-term basis majority of entry and exit capacities in their respective transport zones to underwrite the utilization of their respective gas networks. However, given that European gas network and supply structure was built largely on the view of expanding gas demand in Europe, once these long-term transport capacity bookings expire (in the mid-2020s) locational price spreads could diverge to reflect full cost-recovery transport tariffs between transport zones.

Given that gas demand in Europe is likely to stay flat (or even fall) relative to the overall size of the transmission network, the transport tariffs will increase. This trend is exacerbated should transmission system operators (TSO) implement their announced investment plans in the next ten years. Almost all expected investment in gas network is driven by security of supply concerns in Central, Eastern and Southern Europe (BearingPoint & Microeconomix, 2015). Therefore, the future of the European gas market integration to a large extent (if measured by price differentials between market/transport zones) depends on the effectiveness of the current regulatory regime in ensuring cost reflective tariff setting considering falling gas demand, security of supply concerns and inherited large gas transport networks. Political ramifications of high locational price differences may motivate ‘tailored’ national policy responses in its wake as European authorities move towards ‘harmonisation’ of national gas regulatory policies.

Addressing these challenges may require an update to the current market design and possibly reforms to tariffs setting for gas transport market. Changes could be anything from retaining the existing entry-exit regime and removing capacity charges for cross-border points to avoid ‘*tariff pancaking*’ with inherent problems of ‘missing money’ for cross-border bookings to more drastic reforms such as redefining market zones with a gradual move to nodal pricing. But a workable solution is probably somewhere in between those two extremes.