

Quo vadis EU gas market regulatory framework – Study on a Gas Market Design for Europe

Overview presentation

19 October 2017

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Introduction

Objectives:

- ▶ To assess whether market functioning and overall welfare within the EU can be improved through a revision of the current internal market regulatory framework
- ▶ If so, what specific regulatory measures will lead to such improved welfare

Task 1: Assessment of the current regulatory framework for the EU gas sector from the point of view of overall EU welfare

- ▶ Identify shortcomings & limitations of the current market functioning and EU regulatory framework

Task 2: Identification of possible recommendations for amending the regulatory framework

- ▶ Propose options to overcome potential shortcomings to the regulatory framework
- ▶ Welfare analysis of the proposed options by gas market modelling - options should have a positive overall impact
- ▶ Risk and gap analyses of the proposed options

Methodology

Current gas market

Analysis of current gas market functioning and regulation
Identification of market inefficiencies
Current regulation to address inefficiencies

Welfare definition: the discounted difference between what consumers are willing to pay in the wholesale market for gas and the short-run variable cost of production, imports from outside markets, transportation and storage.

Reference scenario

Qualitative market assessment post 2020
Full implementation of 3rd Package
Basis for quantitative scenario analysis

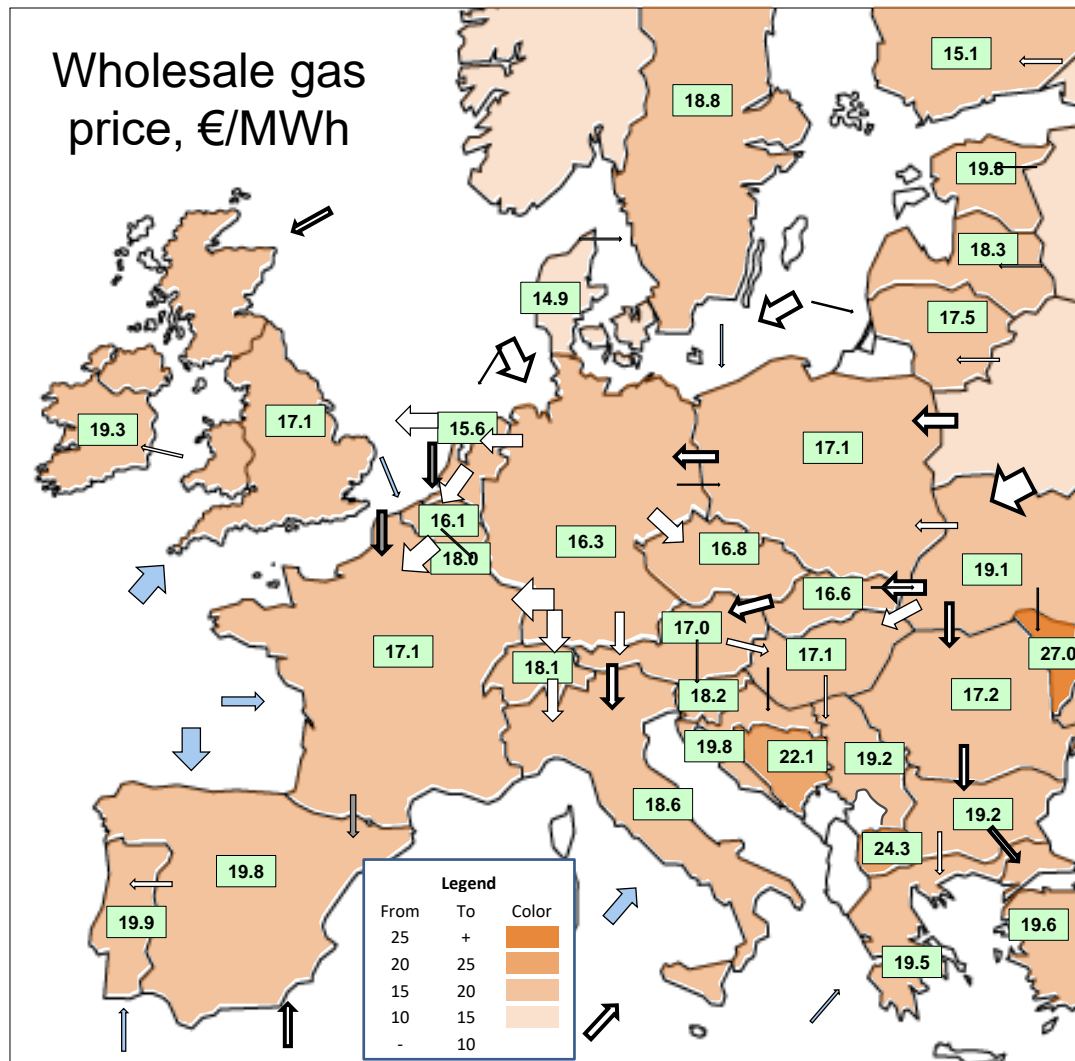
Efficient and inefficient market:
(i) tariff issues (ii+iii) congestions
(iv) network use (v) market concentration
(vi) local specifics in regulation

Alternative scenarios

Approach to creating scenario:
Criterion: (i) significant regulatory change
(ii) viability and (iii) implementability
Qualitative and Quantitative analysis

Final evaluation:
Overall assessment of the alternative regulatory scenarios based on analyses and policy recommendations

Modelling approach – European Gas Market Model



- ▶ Competitive, dynamic, multi-market equilibrium model
- ▶ All market participants are price takers
- ▶ Whole Europe (35 countries) is modelled
- ▶ Model explicitly includes the modelled countries' supply-demand representation, as well as their gas storages and transportation links to each other and to the outside world.
- ▶ Trade is based on long term contracts and spot trade within the EU and with exogenous countries (e.g. NO, RU) and global LNG market
- ▶ A single simulation run encompasses 12 consecutive months
- ▶ Market participants have perfect foresight over this period

Sensitivity scenarios

Demand

- Reference: PRIMES REF
- High: ENTSOG TYNDP Blue
- Low: PRIMES euco30

Supply

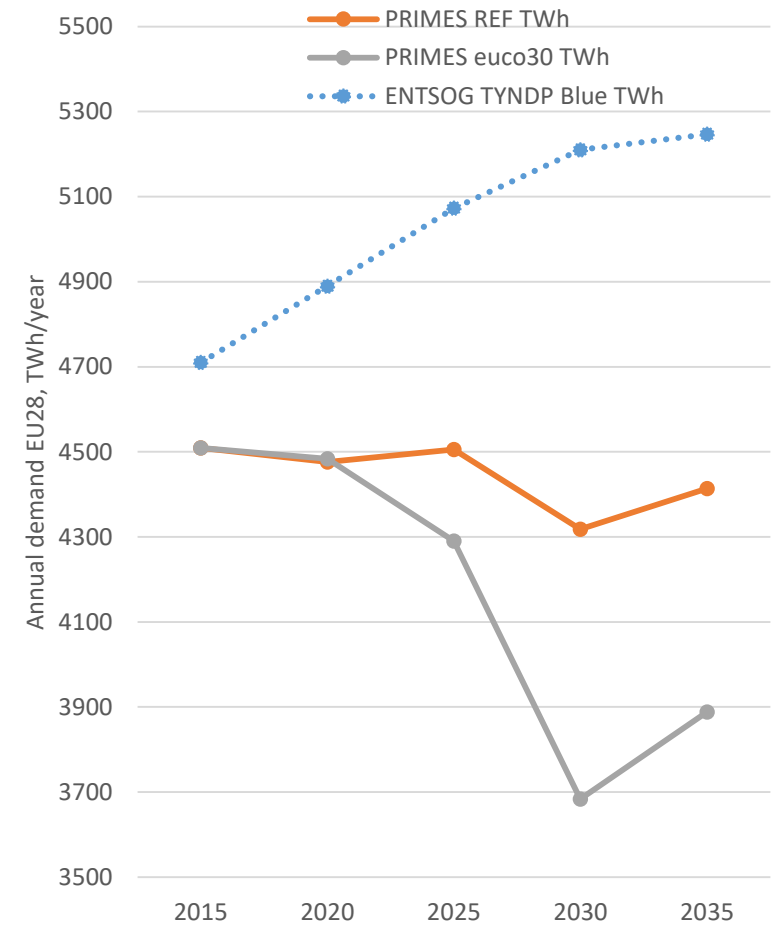
- High and low LNG supply to EU

Key infrastructure

- Nord Stream 2

Long-term contracts

- Volumes and capacities re-contracted (10%; 30%; 50%)



Stakeholder comments

Qualitative part of study

- ▶ Number of received comments: Over 100
- ▶ From this 70% accepted and 30% refused
- ▶ Number of stakeholders commenting: 38
- ▶ Most common comment: *Need to wait for full regulatory framework implementation, with different impacts expected by stakeholder groups*

Modelling part of study

- ▶ Number of received comments: Over 100
- ▶ Number of stakeholders commenting: 12
- ▶ Most common comments relate to: *Dynamics in the model; demand representation; determination of external LTC and spot prices; future of LTCs; future development of transmission tariffs*

1. Tariff reform scenario

Principle

- ▶ Intra-EU cross-border reservation price set to zero
- ▶ Gas storage entry/exit tariff set to zero
- ▶ Revenue neutrality for TSOs through EU-wide TSO Compensation Fund
- ▶ Uniform fee added to current EU entry / internal exit tariffs

Assumptions

- ▶ Zones & infrastructure as per the Reference Scenario

Advantages

- ▶ Increasing wholesale competition & market liquidity across the EU
- ▶ More efficient allocation of gas flows
- ▶ Removal of cross-border tariff pancaking

Challenges

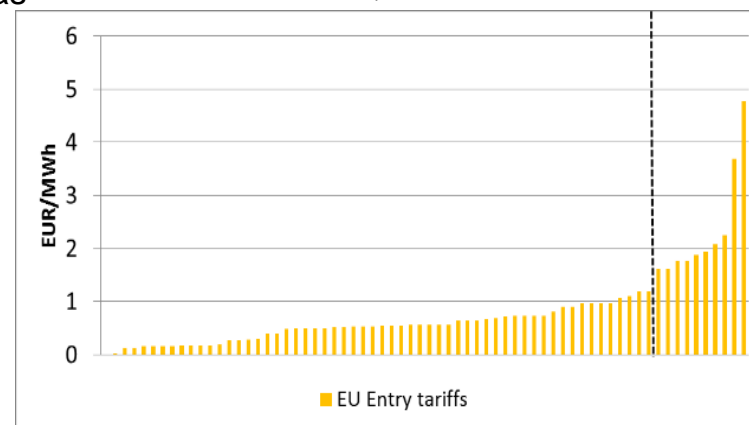
- ▶ EU-wide TSO Compensation Fund needed
- ▶ Limiting capacity hoarding potential (cheap capacity LTCs)

1. Inefficiencies which led to Tariff reform scenario

Main issues

- ▶ Segmented, national entry – exit systems with charging full costs plus congestion fees for gas transits at intra-EU IPs or applying distortive IP tariffs at certain borders are not compatible with an EU-wide integrated gas market
- ▶ Cross-border tariff pancaking distorts internal gas trading
- ▶ The progress with bottom-up market mergers is slow and expensive
- ▶ EU-wide investment project impact evaluation
- ▶ NC TAR is only for harmonizing cross border tariffs but insufficient to remove them
- ▶ Successful parallels of moving away from inter-system tariffs in electricity and telecom

Distribution of IP entry and exit tariffs in the EU, H1 2017



Reason

- ▶ Topology of infrastructure
- ▶ Local variations of the regulation
- ▶ Lack of cooperation or preference of local interests

Aim

- ▶ Increasing market liquidity and efficient infrastructure use
- ▶ Aligning investment incentives on EU level
- ▶ Strengthening regulatory compatibility

2. Trading zone merger

Principle

- ▶ Merging of existing market zones with suitable network topology
- ▶ Reduction in contractual congestion and location spreads, increase in liquidity
- ▶ Supporting environment to enable welfare increasing market mergers

Assumptions

- ▶ Suitability of network topology
- ▶ (Regional) TSO cooperation

Advantages

- ▶ Increased gas trade & intra-zone liquidity
- ▶ Price convergence
- ▶ Practical experience exists

Challenges

- ▶ Need for cost evaluation by a physical modelling feasibility study
- ▶ Need of infrastructure investments to keep original firm capacities when network topology unsuitable
- ▶ Need for local TCF mechanisms

2. Inefficiencies which led to Trading zone merger

Main issues

- ▶ Transmission tariff levels and structure (current tariffs support location spreads between neighboring markets, system of different entry/exit tariffs, barriers for free gas flexibility)
- ▶ Contractual restrictions (there are outstanding long-term capacity contracts, different CAPM procedures)
- ▶ Suboptimal infrastructure use (not only tariff induced, lack of bundled/unbundled capacity offered, TSO cooperation and coordination)
- ▶ Local specifics in regulation and limited transparency (i.e. the EU legislative application)

Reason

- ▶ Suitable topology of infrastructure
- ▶ Local variations of the regulation
- ▶ Lack of cooperation or preference of local interests

Aim

- ▶ Increasing market liquidity and efficient infrastructure use
- ▶ Reducing obstacles to gas flow
- ▶ Strengthening price convergence

3. Conditional market merger

Principle

- ▶ Merger of neighbouring zones separated by transmission capacities
- ▶ Single price as long as transmission capacity is available (implicit auctions)
- ▶ Gap in TSO revenues from internal flows collected in higher tariffs at non-merged borders

Assumptions

- ▶ Existing stable capacity interconnection of the markets
- ▶ (Regional) TSO cooperation

Advantages

- ▶ No direct infrastructure investment, lower implementation costs
- ▶ No need for extensive harmonization of legislation
- ▶ Allows for merging zones that would be unsuitable for a trading zone merger

Challenges

- ▶ Separated balancing zones
- ▶ Efficiency conditional on available interconnection capacity and its efficient management
- ▶ Local TCF needed

3. Inefficiencies which led to Conditional market merger

Main issues

- ▶ Transmission tariff levels and structure (current tariffs support location spreads between neighboring markets, system of different entry / exit tariffs, barriers for free gas flexibility)
- ▶ Implementation of full trading zone merger could prove costly when infrastructure investments needed
- ▶ Contractual restrictions (there are limitations within the zone once the gas enters the zone)
- ▶ Physical restrictions (some part of infrastructure are unavailable)
- ▶ Infrastructure use (lack of bundled/unbundled capacity offer)
- ▶ Local specifics in regulation and limited transparency (i.e. the EU legislative application)

Reason

- ▶ Limitations by topology of infrastructure
- ▶ Local variations of the regulation
- ▶ Lack of cooperation or preference of local interests

Aim

- ▶ Merging zones without high investment costs
- ▶ Induce stronger price convergence
- ▶ Improve infrastructure use, but allow for temporary transmission capacity shortage

4. LTC gas delivered at EU border

Principle

- ▶ Intra-EU delivery point and route dismissed from the LTC on gas supply from outside of the EU
- ▶ Gas delivery at the EU border strengthening the midstreamers' role and competition
- ▶ Preventing (forward) LT capacity contracts for existing infrastructure; product contracts untouched
- ▶ Opening the option for implicit market coupling

Assumptions

- ▶ Scenario eliminates one feature of LTCs that contributes to creating local market power and reduces the efficient use of transmission

Advantages

- ▶ LTC gas can be delivered to various points and reach the optimal market
- ▶ Reduced contractual congestion at intra-EU interconnection points thanks to short-term contract use
- ▶ Reduced market concentration by promoting midstream competition

Challenges

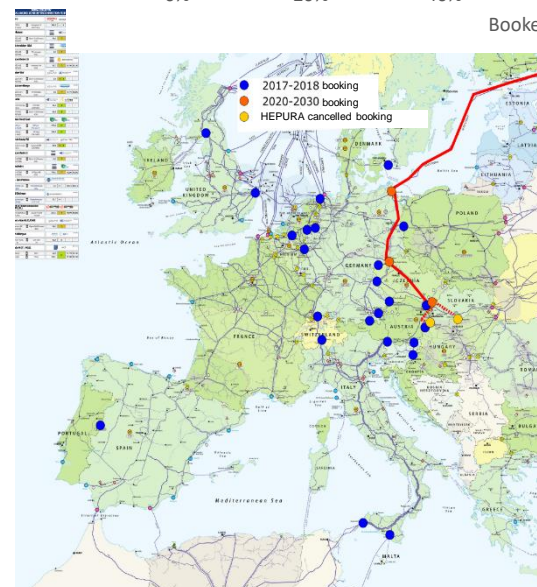
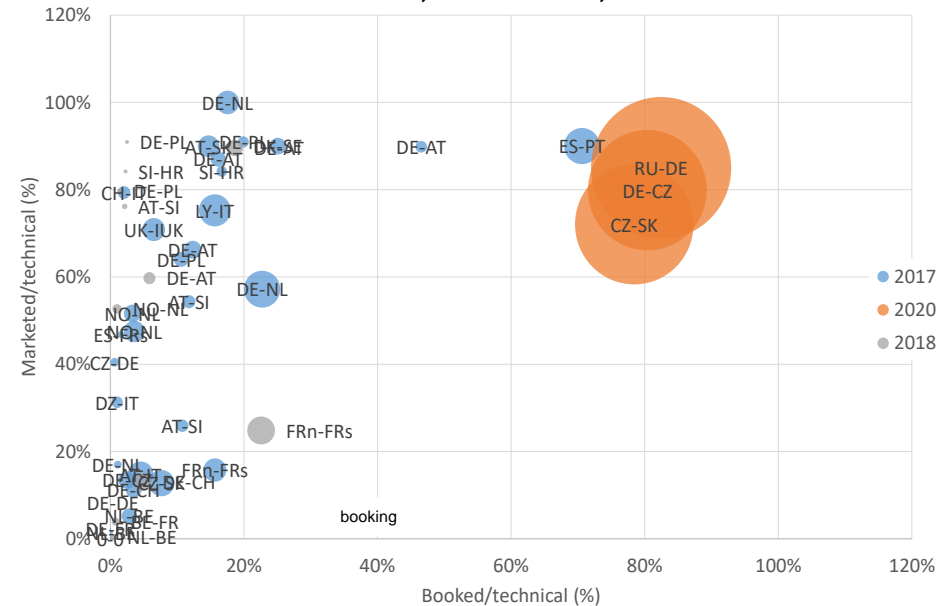
- ▶ Midstreamers have to book the capacity
- ▶ Legal concerns regarding compatibility with existing LTC arrangements

4. Inefficiencies which led to “capacity LTC” scenario

Main issues

- ▶ LT capacity bookings contribute to the inefficient use of the transmission and UGS infrastructure and to contractual congestions, both constraining competition on the IGM
- ▶ LT capacity bookings contribute to increased local market power for LTC counterparty incumbents across the EU
- ▶ LTC capacity bookings are incompatible with implicit market coupling, while successful parallel of implicit market coupling in electricity
- ▶ NC CAM seems insufficient to prevent LT capacity bookings for existing infrastructure that is pivotal to supply certain regions

Prisma, March 6, 2017



DE-CZ-SK reverse flow capacities booked by Gazprom 80% between 2020-30 but some up to 2038

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