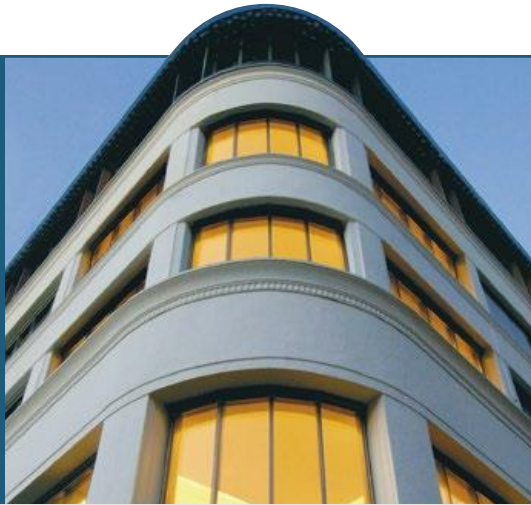


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REGULATION AND LIBERALIZATION OF GAS MARKETS IN EUROPE: LESSONS FOR THE INDUSTRY

GLOBAL ENERGY CONFERENCE

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Outline

- I. Introduction
- II. Traditional principles of gas pricing
- III. Liberalization of European gas markets
- IV. The global financial crisis (2008-2009) and the European “gas glut”
- V. Current gas pricing principles in Europe
- VI. Conclusion

I. Introduction

- The story of how natural gas became a commodity
- Gas vs oil: traditional need for an identified market & security of supply
 - Long-term contract (20-25 years) as a solution
- Origins: the pioneers and the theory of gas pricing
 - Liberalization of European gas markets
 - The “gas glut” of 2008-2009 and the market reaction
- Gas as a commodity: LNG, hubs, pricing, trading
- Current gas pricing principles

II. Traditional principles of gas pricing

- Basic philosophy: seller takes the price risk and the buyer takes the volume risk
 - Enables long-term commitment – take or pay contracts
- Market value principle vs cost based/regulated prices (end users)
- Gas market value analysis (GMV)
 - Indifference cost principle (*Anlegbarkeit*)
- Price Formula, e.g.
 - $P_n = P_0 + (0.4 * \text{Gas Oil} + 0.4 * \text{Fuel Oil [H]} + 0.2 * \text{Fuel Oil [L]})$
- Oil product prices as a proxy for the value of gas in the end user market of the buyer

III. Liberalization of European gas markets

- Exclusive natural gas transportation, storage and distribution facilities vs third party access
- First Gas Directive (98/30)
 - Choice between negotiated access and regulated access
 - Negotiated access = access to infrastructure in accordance with good faith negotiations and voluntary commercial agreements based on published conditions of use
 - Regulated access = negotiations based on right of access based on published tariffs and conditions of use
- Second Gas Directive (2003/55)
 - Regulated access for downstream pipelines
 - Unbundling in the transmission sector, distribution system operators

III. Liberalization of European gas markets (cont'd)

- Third Gas Directive (2009/73)
 - Separation of production and supply from transmission network operation activities (ownership unbundling/independent system operators)
 - Reinforcement of regulatory supervision and cooperation

IV. The global financial crisis (2008-2009) and the European “gas glut”

- Despite liberalization efforts, there were no European gas markets before the 2008-2009 – pricing of gas not based on supply and demand
- The events of 2008-2009 changed this:
 - Financial crisis: substantial reduction in demand and consumption throughout Europe
 - Increased supply: new LNG facilities and contracts came online
 - Shale gas revolution in the United States – LNG capacity destined for US market diverted to Europe
 - Volume of gas traded in hubs increased substantially

IV. The global financial crisis (2008-2009) and the European “gas glut” (cont’d)

- Decoupling of gas prices under short term/spot contracts from oil prices
 - = market price for gas

V. Current gas pricing principles in Europe

- A market still in transition - there are many European markets
 - UK, North Western Europe, South Western Europe, Southern Europe, Eastern Europe
- Long-term gas contracts vs short term/spot markets
- Oil indexation vs supply/demand (hub) based pricing
 - How to price security of supply and flexibility
- Price level vs price formation mechanisms
- Opportunities for trading for both buyers and sellers

VI. Conclusion

- Regulatory liberalization vs emergence of markets
- Decoupling of gas prices from oil prices – sustainability?
- Prices under long-term contracts vs short term/spot transactions
- Future of gas trading and long-term gas contracts in Western Europe
 - Gas as a commodity
 - Security of supply
 - Flexibility

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