# CIEP Vision on the Gas Target Model

ASCOS
(Ample, Secure and Competitive Supply)

Clingendael International Energy Programme

Nederlands Instituut voor Internationale Betrekkingen
Netherlands Institute of International Relations
**Clingendael**

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*Clingendael Energy Paper*

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## Clingendael International Energy Programme

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| Address | : Clingendael 7, 2597 VH The Hague, The Netherlands<br>P.O. Box 93080, 2509 AB The Hague, The Netherlands |
| Telephone | : +31 70 374 66 15 |
| Telefax | : +31 70 374 66 88 |
| Email | : ciep@clingendael.nl |

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# 1.

# Introduction

Part of the agenda established by the Third Market Package is to create a set of EU-wide Network Codes to facilitate cross-border gas transactions. Transmission System Operators (TSOs) should operate their network in accordance with those Codes. These Codes have to be in line with a set of non-binding Framework Guidelines and binding Guidelines on specific subjects developed by respectively the Agency for the Cooperation of Energy Regulators (ACER) and the European Commission. Recently, the European Council of February 4th, 2011 added the political ambition that the internal energy market be completed by 2014[1].

In order to ensure that the Framework Guidelines do not conflict, the suggestion has been made to develop a coordinating tool, a target model, as a set of organizing principles. Hence, the 18th Madrid Forum invited 'the Commission and the regulators to explore, in close cooperation with system operators and other stakeholders, the interaction and interdependence of all relevant areas for network codes and to initiate a process establishing a gas target model'.

Several initiatives have been launched to explore the scope for such a tool, usually referred to as a Gas Target Model (GTM). These have led to a number of studies and stakeholder positions[2]. The Clingendael International Energy Programme (CIEP) was also invited to participate in these discussions and studies and submits this paper as a contribution to the ongoing discussions. This paper addresses the main issues to be considered in developing a regulatory framework for the future for the evolving European gas market as it becomes increasingly import-dependent.

## 1.1 Some reflections on a Gas Target Model

In our view, a Gas Target Model (GTM) should be a non-binding, top-down set of broad principles which would serve as a tool to help guide and assess the ongoing process of developing Framework Guidelines and Guidelines. We would like to stress that a GTM should by no means offer a detailed market design, but that the development of these broad guidelines would allow for a dynamic development of the market.

In a liberalized market, markets are created and designed by market participants. Regulators should focus on setting conditions to facilitate choices by market participants and allowing them the necessary flexibility to carry out their businesses as they see fit, within the wider context of existing policies.

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[1] European Council, "Conclusions of the European Council (4 February 2011)".

[2] Sergio Ascari (2011), "An American Model for the EU Gas Market", Florence School of Regulation <http://www.florenceschool.eu/portal/page/portal/FSR_HOME/ENERGY/Publications/Working_Papers/2011/RSCAS_2011_39.pdf>. Boaz Moselle (2011), "Market Design for Natural Gas: The Target Model for the Internal Market", LECG <http://www.ofgem.gov.uk/Europe/Documents1/LECG%20Gas_Target_Model_0700311.pdf>.Jean-Michel Glachant (2011), "A Vision for the EU Target Model: The MECO-S Model, Florence School of Regulation <http://www.florenceschool.eu/portal/page/portal/FSR_HOME/ENERGY/Publications/Working_Papers/2011/RSCAS_2011_38.pdf>. Frontier (2011), "A Target Model for the European Natural Gas Market", <http://www.frontier-economics.com/_library/publications/frontier%20report%20-%20target%20model%20for%20the%20european%20natural%20gas%20market.pdf>.

Gas markets are uncertain by nature, and these uncertainties are becoming more and more relevant on both the demand side and the supply side. These uncertainties should not be aggravated by attempts at market designs that are too rigid to absorb, adapt and embrace future developments.

Against this background it must be made clear that the role of a GTM cannot be a prescription for the future business environment in the EU gas market. The view expressed in this paper therefore presents a "model" for reflection, discussion and policy orientation for the EU gas market, derived from a vision of the main features of a well-functioning internal market.

## 1.2 Vision in a nutshell

Our views and ideas on a GTM are structured around a vision illustrated in Figure 1. This figure represents the main coordinating principles under which a well-functioning EU market can continue to evolve and deliver competitiveness and security of supply.

A discussion around a future framework for regulation should start with the market and its developments, i.e., the gas industry and its transaction mechanisms, which are represented in a variety of forms, from long-term contracts to spot deals. Each has its own role to play in the total make-up of the gas business, and each represents a transaction between two willing market players.

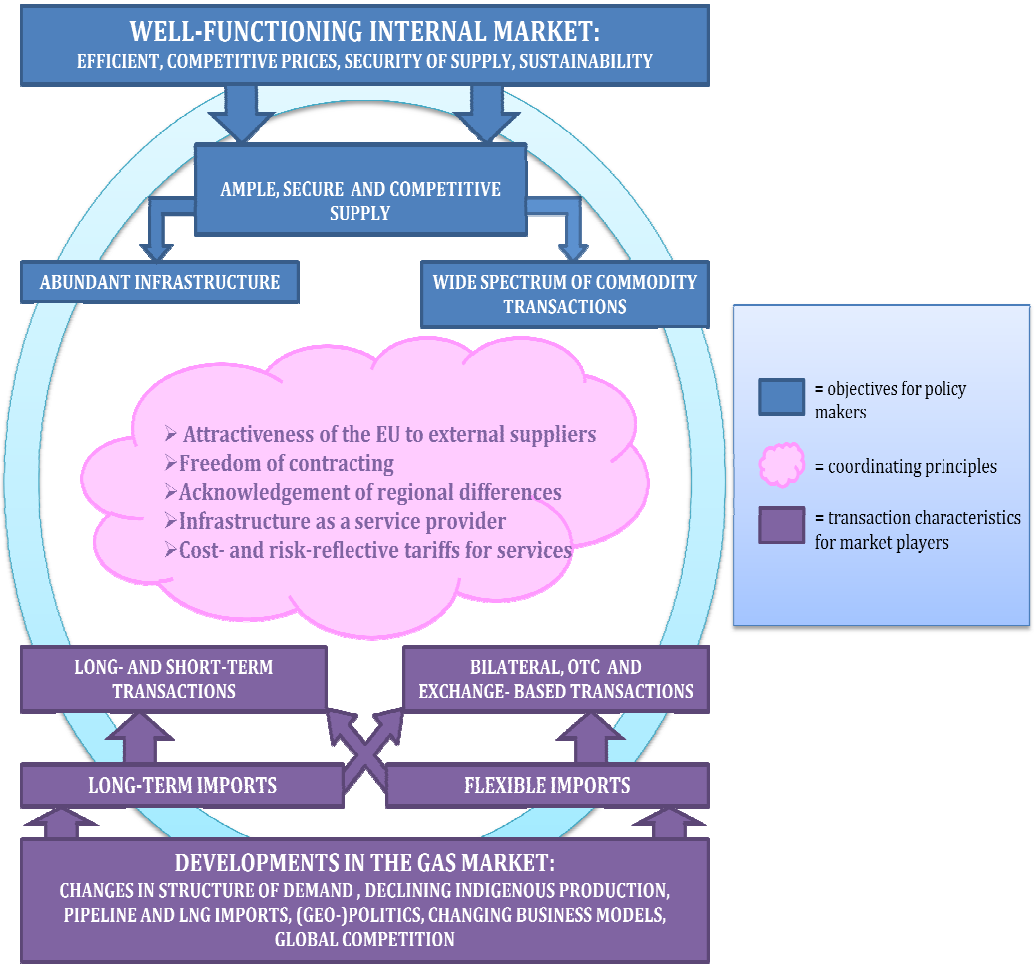
The policy framework provides the context for these market transactions. The objective is to achieve a well-functioning internal market. In this paper, the measures in the Third Package will serve as a starting point. As this regulatory framework is not yet fully implemented, further improvements in the functioning of the EU gas market can be expected.

A well-functioning internal market translates into three conditions, without which the market will fail to meet this objective.

These are:

- Ample, secure and competitive supply of gas (this is without doubt the main condition);
- Abundant infrastructure, on the basis of market-led investments; and
- A wide spectrum of different commodity transactions, mutually agreed upon by market participants.

**Figure 1. CIEP vision**




The various aspects of the CIEP vision will be further explored and discussed in the following chapters.

The concluding chapter in this paper contains a brief discussion of other measures that have been suggested and presented in other papers, which in our view do not contribute to a well-functioning EU market.

# 2.

# Points of Departure: Policy objectives and gas market characteristics

The starting points in analyzing how a gas target model should be shaped are the objectives of policy makers, as well as the developments in the gas market and the resulting characteristics of the transactions between market parties. In Figure 1, the dark blue and purple boxes respectively represent these concepts. In this chapter, these parts of our framework will be addressed.

Attracting and accommodating new supplies will be essential: gas prices, market competitiveness and supply security of the EU gas market depend critically on the availability of ample supply sources. The EU is increasingly in competition with other markets for these supplies.

Suppliers of gas from new sources may well require long-term contracts with buyers in the EU and vice versa. Transmission of gas under similar contractual conditions will have to be part of these transactions.

The growing role of gas in power generation in the EU is evolving, notably due to the development of intermittent renewable energy sources.

Suppliers and other market players also develop business options to be able to respond to market uncertainty, enhance security of supply, capture opportunities and strengthen their competitive positions. The actual use of these options is uncertain. Business options may involve investments in new (cross-border) infrastructure.

## 2.1 Developments in the gas market

The characteristics of gas supply and demand in the EU, as well as the preferences of the affected market parties, need to be taken into account when the instruments for achieving policy objectives are discussed. Together with the regulatory institutions and other policy measures, these instruments influence the evolution of the market.

### *2.1.1 Developments in the EU market*

Within policy frameworks, market parties will adopt the most economical manner of producing, using, supplying, trading and importing or exporting this energy commodity. The long-term demand for gas, will be determined by the relative competitiveness of this fuel compared to other energy sources, such as oil, coal, nuclear energy and renewables, against the background of

the development of total energy demand. A GTM should acknowledge this fact and allow gas a level playing field to compete with other energy sources.

Even if this level playing field exists, the high price inelasticity of the demand for gas will only increase. Once consumers have chosen a fuel type, they usually don't have back-up facilities. Moreover, modern highly efficient gas equipment (e.g. gas turbines) cannot be operated on substitute fuels. Furthermore, the seasonal use of gas for heating results in a relatively strong fluctuation in the demand for gas, with a considerable regional variation within the EU, and individual winters may be relatively warm or cold.

In the power industry, gas will maintain its competitive economic and environmental advantages *vis-a-vis* other fuels, in particular for peak generation. The development of gas's share in base-load production depends on its competiveness with coal and nuclear energy. A strong societal and political desire to enable the most cost-efficient $CO_2$ reduction strategy would benefit gas. In most scenarios it is foreseen that gas will gain in importance in the foreseeable future, notably as the primary back-up fuel to accommodate intermittent renewable electricity generation[3].

The installed capacity of variable wind and solar plants will not be spread evenly over the EU, nor will the actual amount of sunshine or wind speed. This will result in a fluctuating and possibly increasing call for gas in the different regions, as well as in cross-border gas flows. Altogether, variations (in time and place) of demand and competitive supply options will increase in the EU market. The resulting price differences will steer gas flows in the most desirable directions. Storages and flexible LNG and pipeline deliveries will play a major role in coping with these demand variations. Transmission infrastructure acts as a facilitator. As market players increasingly seek to procure capacity in new infrastructure in order to capture the advantage of these demand variations from the full range of supply options, it is likely that there will be a need for investments in new gas infrastructures servicing markets within and across the borders.

### *2.1.2 Supply side dimension*

In spite of the uncertainty about the development of gas demand over the medium and longer term, in all scenarios the declining indigenous production will result in an increasing dependence on external imports. Unconventional gas may reduce these import needs, but it is too early to fully appreciate their future contribution[4]. While currently there is a global gas glut, it is projected that around 2015 the global gas market will become tighter.

A GTM should take into account the longer term, when EU markets will be increasingly in competition with other markets in Asia and, possibly, North America to import large amounts of gas on competitive terms. Competition for new supplies may be exacerbated by the rising internal demand in producing regions[5]. The impact of the recent Fukushima nuclear incident on the gas market again illustrates that gas, and particularly LNG, is becoming a global commodity.

Prices on wholesale markets and end-use prices in the EU depend primarily on the level of import prices and, to a much lesser extent, on wholesale and retail margins**.** Thus, potential gains in price reduction from abundant competing supplies could be considerably more significant than

[3] See Communication from the Commission, "Energy Infrastructure Priorities for 2020 and Beyond: A blueprint for an integrated European energy network", COM (2010) 677 final, 16.

[4] Even if it is believed that unconventional gas will play an important role, we do not believe it is wise to bet on such a development in a target model.

[5] In the latest IEA publication on gas it is anticipated that gas consumption in Russia will grow only modestly due to improvements in efficiency and the gradual elimination of subsidized gas prices. However, together with China, it is expected that the largest sources of incremental primary gas demand will come from the Middle East. See for further information: IEA (2011), "The Golden Age of Gas", <http://www.iea.org/weo/docs/weo2011/WEO2011_GoldenAgeofGasReport.pdf>.

those from competition further downstream in the market. Increasingly these supplies will have to come from outside the EU. Therefore, the EU must offer an attractive market to which to sell gas, one able to compete with Asia and North America, in order to source sufficient gas for its markets. This will also enhance long-term security of supply.

It should also be recognized that the number of external producers is limited. In other words, the supply to the EU gas market will likely remain oligopolistic. While both industry and policymakers have been actively promoting diversification of supplies to enhance competition and supply security, a GTM should take into account that several parts of the EU market will continue to face a highly concentrated supply situation for their gas imports.

In the EU market different supply options, like pipeline gas or LNG under long-term contracts, short-term supply of pipeline gas and flexible LNG, have a role to play. When producers and buyers prefer to trade gas on a short-term basis, there should be a platform for such transactions. However, long-term contracts have been the prime instrument to efficiently allocate the risks and rewards between buyers and sellers. So far, virtually all significant upstream or merchant infrastructure projects have been realized on the back of substantial commitments under long-term contracts, providing investors with security of demand. Long-term contracts also provide the best guarantee for security of supply, i.e., that gas supplies will continue to come to the EU. Over the next two decades, current long-term contracts will continue to represent the vast majority of gas flows towards and within the EU. From an economic point of view, it can be expected that these types of gas supply contracts will retain a major role in the future. Nevertheless, the contract structures are by no means static. Long-term gas supply contracts, notably LNG contracts, have been evolving in terms of flexibility options and/or pricing structures towards more flexible transactions.

Growing dependency on imports is likely to imply more transit of significant volumes across entry-exit zones. Facilitating these transactions will be one of the main challenges for a GTM.

## 2.2 Policy objectives

### *2.2.1 General objectives*

The EU aims for a well-functioning European market for energy are stated in the Lisbon Treaty on the functioning of the European Union:

*'In the context of the establishment and functioning of the internal market and with regard for the need to preserve and improve the environment, Union policy on energy shall aim, in a spirit of solidarity between Member States, to:*

1. *ensure the functioning of the energy market;*
2. *ensure security of energy supply in the Union; and*
3. *promote energy efficiency and energy saving and the development of new and renewable forms of energy; and*
4. *promote the interconnection of energy networks'.*

The Third EU Energy Package provides a further agenda for building and developing the internal EU energy market, both for gas and for electricity. It aims to establish an internal market in natural gas '*to deliver... more cross border trade, so as to achieve* ***efficiency gains*** *and* ***competitive prices****..., and to contribute to* ***security of supply*** *and* ***sustainability****'*.

As elaborated on in the previous section, the main prerequisite for this agenda is to attract ample external supplies. After all, the EU internal gas market is increasingly dependent on supplies from countries outside the EU. Gas scarcity, or even the threat of it, would destroy all potential gains from the internal market and leave the EU citizens with high gas prices and a lack of security of supply.

### *2.2.2 A well-functioning wholesale gas market*

According to Article 1 (c) of Regulation 715/2009, the aim is: ' *...facilitating the emergence of a well-functioning and transparent wholesale market with a high level of security of supply in gas and providing mechanisms to harmonise the network access rules for cross-border exchanges in gas...'*
No real definition is provided for the concept of a "well-functioning wholesale market", however. We believe the following definition should apply:

> A "well-functioning wholesale market" for gas is a market in which any party, be it a reseller or a large industrial user, can engage at any moment with any other party, within the same zone, across zones and across borders or outside the EU, purchase and sell natural gas, on terms and conditions which are mutually agreeable.

Gas transport arrangements are complementary to commodity transactions. So, parties should be enabled to procure or develop transport infrastructure capacity, in line with the conditions of the commodity transactions agreement, facilitated by regulation, and based on economic and commercial costs and criteria.

In the next chapter we will explain why the above-mentioned definition should be the starting point of policymakers and specify the essential elements of which a "well-functioning market" should consist by first addressing issues on the commodity side and secondly those with respect to infrastructure

# 3.

## Coordinating principles and instruments

A GTM should reflect the long-term horizon of the gas business, the growing need for imports and the forces of the uncertain, competitive market.

Ample supply is the basis of competitiveness.

For markets to work, market parties should have contractual freedom to engage in commercial transactions that meet their needs, both long- and short-term.

As supplies will likely require long-distance transportation, low barriers for inter-zonal gas transport under long-term capacity agreements are paramount for the internal market to work.

A well-functioning EU gas market will be characterized by regional differences: the internal market will do its work on a commercial basis, facilitated by an adequate regulatory framework.

Infrastructure is a service provider. The conditions of the current competitive market also lead market players to enter into long-term capacity contracts as options for future business.

A GTM should facilitate investments in infrastructure when economically justified and should aim to accelerate decision-making processes.

Where new investments lead to more competition between infrastructures, exemptions should be applied.

A well-functioning gas market relies on a regulatory structure which:

- reflects the commercial and economic conditions of the supply and transportation of gas, allowing for cost- and risk-reflective tariffs for services;
- supports new investments; and
- facilitates coordination of “transit” arrangements.

As stated in previous sections, a GTM should reflect the long-term horizon of the gas business, the growing need for imports and the long- and short-term forces of a dynamic, competitive market. Against this background the following points offer a sound foundation for a future policy and regulatory regime.

## 3.1 Freedom of contracting fosters ample supplies

Against the perspective set out in Chapter 2, the CIEP vision on a gas target model advocates that sellers and buyers should remain free to engage in commercial transactions at mutually agreed upon conditions, both in the long and the short term**.**

Ample supplies remain the basis for a well-functioning gas market, as illustrated in Box 1.

### Box 1: Developments in the US gas market

The importance of having ample supplies is best illustrated by the developments over the last 10 years in the US gas market. Due to declining indigenous supplies and limited developed import alternatives, its prices rose to become the highest in the world around 2005, despite all its internal market competition and hub-based trading. Today, with ample supplies, its prices are among the lowest worldwide.

It is worth noting that the Federal Energy Regulatory Commission (FERC) removed open-access requirements for LNG import terminals, in order to lower the entry barriers for the required new imports (although, as it happened, unconventional gas formed a new, abundant source of supply for the US market).

Consumer prices (ex-tax) depend far more on adequacy of supplies than on internal market competition. In other words, consumer prices are largely determined by import prices. It is therefore relevant for Europe to foster the competition between external suppliers, by maintaining and improving conditions for access to the European market. A pursuit of a specific trading model for the internal market could frustrate this. Some external suppliers may be looking for hub-based transactions; others for secure, long-term contracts, directly with European buyers. A GTM should accommodate both. More choice implies a higher attractiveness of the market and an increased chance for ample supplies. Customized long-term contracts will reflect different supply conditions. As these supplies will likely require long-distance transportation, low barriers for inter-zonal gas transport under long-term capacity agreements are paramount for the well-functioning of the internal market.

Regarding the internal market, as market circumstances change, the most economically efficient allocation of risks and rewards will also change. Market parties are in the best position to fill in the future role of gas in any policy framework concerning the EU energy mix and should be able to employ all commercial options to balance changing market conditions and the long-term investment horizons inherent to the gas business. Terms and conditions of (commodity) transactions will vary and will be adapted to changing market conditions.

For example, the changing role of gas in electricity generation, in combination with intermittent sources of energy, could lead to more short-term gas market transactions. At the same time, very recently, a UK power generator entered into a long-term supply contract with a Norwegian supplier. Press reports on this transaction stated that similar long-term contracts were underway in the UK. This illustrates that it is difficult and imprudent to speculate on the direction and volume of future (short-term) trading[6] versus the role of long-term contracts. The latter, with their built-in flexibility and supply security, may well remain a cornerstone of the EU's supply portfolio.

As is explained in Box 2, we are quite certain that an effective European gas market cannot be "designed", but should evolve, in the interaction between suppliers and consumers, driven by the

[6] See also Ascari (2011), "An American Model for the EU Gas Market".

development of technical, political and social factors and the impact thereof on the preferences of the market parties.

### Box 2: Reflections on the neoclassical model of a well-functioning Market

Standard neoclassical economics assumes that a well-functioning market for any good or service is a market that has the characteristics of the theoretically ideal market on which most neoclassical analysis is based: rational and fully informed profit- and utility-maximizing actors, no barriers to entry and exit, many sellers and buyers, no transaction costs, etc. In the neoclassical ideal situation the coordination of supply and demand is driven only by the short-term (spot) market mechanism; i.e., by the prices which emerge out of the balance between short-term supply and demand when the market has reached equilibrium. The standard shorthand solution to improving the functioning of a neoclassical market is that short-term trading is enforced via the traditional recipe of market restructuring. We acknowledge that this solution may work in markets where the characteristics (may) come close to those of the theoretical market model.
However, in the context of the market for natural gas, it is clear that the fundamentals of the industry will never approach those of a neoclassical market. Its specific technical, spatial, economic and (geo)-political configuration and the delay between investment decisions and their materialization precludes any reminiscence to the well-known "ideal" neoclassical market model. It is not without peril and, most likely, not efficient to apply simple neoclassical economic theory to the European gas market with its inherent complexities. We therefore reject this idea of the standard restructuring approach, with its aim of achieving "a" market for natural gas which will yield an acceptable pattern of supply and demand, allocating gas at acceptable prices, over the shorter and the longer term. The reality is much more complex. We highlight the dominant role of state interests in the upstream gas industry, as well as the asset specificity and risk involved with importing and transporting the gas from the sources to the markets and selling it there. These, however, belong to the fundamental characteristics with which the gas market has to reckon. We argue that Europe should not experiment with its gas market, in the hope that it may ultimately work well. Experiments may actually harm the functioning of the European gas market.

Given this context, we argue that the governance structure should, explicitly, provide for freedom to the parties involved on the supply and demand side and in between, to incorporate the particularities of gas market transactions in the terms of their contracts, the risk and the opportunities. Under such circumstances, market participants would strive to optimal outcomes, which fit with the specific characteristics of the European gas market. Trade will only flourish when transactions are coordinated by contractual structures in such a way that it is acceptable to all parties involved, up-, mid-, and downstream, taking into consideration their own perception of the associated market opportunities and risk. Both buyers and sellers should be allowed to take into account the particular characteristics of the different (potential) suppliers as well as the several national and regional markets, to provide an acceptable level of security of supply and of demand at an acceptable price, including their objectives of achieving a sustainable energy system.

Box 2 underscores that a well-functioning European gas market should be characterized by a transactional flexibility, in response to changes in, for example, its technological, organizational and marketing spheres. It is precisely in these spheres that competition emerges!

The principle of contractual freedom in relation to buying and selling gas is a fundament underlying the Third Package. Its point of departure is that the wholesale of gas is a competitive activity. Based on the above analysis we suggest that freedom of contracting, responsive to

altering market conditions, should be maintained with respect to any new gas market policy. This means that no general *ex ante* rules impacting the wholesale trade of gas should be imposed. Competition law should discipline market participants who abuse their positions.

## 3.2 Regional Differences

A well-functioning EU gas market will be characterized by regional differences: the internal market will do its work on a commercial basis, facilitated by an adequate regulatory framework.

As set out in Box 3, regions within Europe differ considerably and will not become similar. A well-functioning wholesale market in the EU should acknowledge and make full use of the diversity of positions of regions across Europe. It should build on the reality of these differences and allow the market to find and develop the trading transactions and infrastructure that it needs, to bridge these differences in a market efficient and economical manner.

### Box 3: Differences between regional markets

On the supply side, Europe has a number of pipeline and LNG sellers with a variety of preferences. Some sellers prefer long-term contracts; others sell their gas on a short-term basis. Some of them have many sales options; others have limited options, linked as they are to existing pipelines. Some suppliers have to manage a declining resource base; some are confronted with a possible internal increase in indigenous gas demand; others have a huge long-term supply potential.

On the demand side, some regional markets are easily accessible by sea, like Spain; others, like Hungary, are fully dependent on (one or more) pipeline-based supply sources. Only a few markets, such as the UK and NW Europe, have a real choice of supply options, involving indigenous supply, pipeline-based imports and LNG. Others don't, because geography and economic criteria limit their choice of options.

The structure of demand also varies considerably among the EU Member States; some markets are well developed and mature, others are not. Gas is used in households, industry and in power generation in widely varying proportions and volumes. Moreover, the availability of alternatives for gas depends on the local circumstances.

The different demand and supply profiles of regions in Europe impact contract structures and price formation in these regional markets. Players in these markets use their contractual freedom to balance and optimize security and price competitiveness based on the reality of these structural differences.

With this in mind, it is no surprise to read in Article 1 of Regulation 715/2009, which mentions the objective of this regulation, that regional differences serve as a starting point with regard to third party access:

*'...taking into account the special characteristics of national and regional markets with a view to ensuring the proper functioning of the internal market in gas...'*

Given these differences, it should be expected that the characteristics of transactions, in terms of volume, risk and nature, differ and will continue to differ between these regions. Market players in NW Europe, with access to flexible LNG and pipeline supplies from different sources, are using and developing different instruments than market players in Eastern and central Europe − both contractual and physical − to manage their supply portfolios. A number of gas hubs, varying in scale and scope, will facilitate trading among those market players with different portfolio

profiles and enhance the allocation of gas to the customers[7]. The variety in hubs and traded volumes is the outcome of the different market conditions and demonstrates the flexibility in deal-making that the EU needs to bring all these differences into one market.

In a well-functioning European gas market, transactions between traders in the regions should complement import contracts. Short-term and long-term inter-zonal gas deals should be facilitated by easy and quick access to transmission capacity from existing and new infrastructure. This will not remove the structural differences between regions but will ensure that the EU economy gets the full benefit from an internal gas market.

## 3.3 A well-functioning gas market needs ample infrastructure

Investments in gas production involve high up-front capital costs and long lead times. Without access to markets, such investments are useless. Thus, for gas producers relying on transport by pipeline or LNG, infrastructure plays a critical role in the chain from well head to market. Hence, secured access to transmission, LNG import terminals and/or storage, by means of long-term capacity contracts, is generally required by investors and financial institutions prior to a final investment decision (FID) to realize and fund investments in new upstream production capacity.

In general, infrastructure capacity contracts should be designed to reflect the conditions of the commodity sale and purchase contracts. This implies that suppliers should have the option to contract infrastructure for a similar duration as the supply contract, as soon as they conclude these contracts with consumers. After all, while suppliers are contractually obliged to supply their buyers, the risk of not having access to sufficient and secure transport capacity poses significant risks, which may frustrate the conclusion of supply contracts and/or will have to be priced towards end consumers.

Market players may also require capacity in pipelines and other infrastructure as options for future commodity transactions. They are prepared to make long-term commitments for the procurement of this capacity against economic costs. Without the opportunity to develop these options, their ability to position themselves competitively in the market is restrained. The utilization of the capacity thus acquired will vary with the evolving supply conditions. There are various examples of investments in such capacity-based options (see Box 4).

### Box 4: Examples of investments in capacity-based options

The UK market is currently in a good supply position. Both regulatory and geographical conditions have contributed to the development of a market with very low entry barriers for external producers. It has developed ample infrastructure to accommodate imports, both with pipelines and LNG import terminals. The total volume of imports under long-term contracts is well below the total import capacity, illustrating the value and use of capacity options. We suggest that the resulting impact on competitive gas prices has been considerably higher than that of competition between resellers within the UK market.

Similarly, capacity investments as options can be found on the continent, not only in storage facilities but also in LNG import terminals and in pipelines, notably the Nordstream system, which is only partly used for long-term supply contracts.

This form of optionality in the use of infrastructure is increasingly becoming part of the business structure of the Western European markets. Obviously, the pipeline infrastructure behind LNG

[7] See also Ascari (2011), “An American Model for the EU Gas Market”.

regasification terminals and storage facilities needs to provide the required transport capacity at any time.

These investments meet the EU criterion of enhanced "efficiency in system performance", which is often misinterpreted by using the utilization rate of infrastructure as a performance benchmark. In fact, a well-functioning market will lead to lower average annual utilization rates of transmission capacity, as is illustrated by the decline in utilization rates of US pipelines[8].

Gas transport towards and within EU markets is a service complementary to commodity transactions. This implies that the principle of a "level playing field" should take into account the variety in commodity contract conditions and should lead to a similar variety in transport contracts regarding duration and other conditions. This is instead of imposing an *ex ante* singular formula: one-size-fits-nobody. Ideally, commodity contracts should be perfectly mirrored by infrastructure services in order to achieve the most economically efficient transactions. Therefore, the option of customization of (long-term) transmission contracts would benefit the functioning of the European gas market.

## 3.4 Providers of capacity should be enabled to invest in additional infrastructure

A GTM should facilitate investments in infrastructure when economically justified (see Box 5 for a vision on investments under the Security of Supply regulation) and should aim to accelerate decision-making processes. It should also provide for coordination in investments required to service "transit" arrangements for long-term supply contracts.

A likely scenario is that there would be a further need for investments in new gas infrastructures servicing cross-border markets, as explained in the previous section. Most certainly, we will also see the need for increased cross-border gas flows, not only for "transit" of gas under long-term supply contracts from producers inside and outside the EU, but also for short-term supply options, for example because of the uneven spread of installed renewable power plants and because of regional differences in wind speeds, sun power and (winter) temperatures.

### Box 5: Investments under the Gas Security of Supply Regulation

With the new Gas Security of Supply Regulation, EU policy is requiring the development of pipeline reverse flows, the extension of the N-1 principle to natural gas, and the establishment of national and regional emergency plans to cope with high demand situations and potential supply interruptions. In a market in which the participants are encouraged to make long-term infrastructural commitments based on economic criteria, additional capacity will be developed autonomously. This may significantly contribute to satisfying the requirements of this Security of Supply (SoS) regulation.

Care should be given to avoid the potential "crowding out" effect of this SoS regulation on economic investments, including in reverse flow capacity. If (part of) the investments required under this regulation can also be used other than for security reasons, i.e. for commercial purposes, market players may be tempted to wait for these investments to be socialized, hoping to obtain free rider advantages. Moreover, investments which are uneconomical from a commercial perspective but are judged necessary for compliance with the regulation may still affect the "playing field".

[8] See for more information: Aad Correljé, Dick de Jong and Jacques de Jong, (2009), "Crossing Borders in European Gas Networks: The Missing Links", Energy Paper, Clingendael International Energy Programme <http://www.clingendael.nl/publications/2009/20090900_ciep_paper_gas_networks.pdf>.

Often, investments in gas pipelines, LNG import terminals and storages rely on the conclusion of long-term capacity contracts. The success of Open Seasons in Europe to date demonstrates clearly the willingness of market participants to pay for investments. This applies equally to cross-border transmission capacity[9]. Also in the US, Open Seasons are a successful instrument to judge whether new infrastructure is economically feasible and to commit market participants to the utilization of it.

The lead time between the conclusion of long-term transmission contracts and a (positive) FID by the TSO granting the capacity poses a serious risk for the contractor of that capacity and thus to the functioning of the wholesale market. The reason is that investments in transmission infrastructure are usually only a part of a series of investment decisions in the gas value chain. Currently, the discussions with regulators and other stakeholders on the usefulness and economics of the proposed investment are carried out on a case-by-case basis, take considerable time and have an uncertain outcome. Such discussions are even more difficult and cumbersome in cases when they are lined up by national stakeholders and regulators, when investments involve costs and benefits that have to be redistributed internationally.

In our view, the joint objectives of policymakers and regulators should be to reduce the lead time between the conclusion of contracts and the investment decision[10,11]. This can be helped by simplifications in the process:

- ACER should define whether new transmission capacity is located in and/or has an impact on the territory of more than one Member State: the Ten Year Network Plan of the European Network of Transmission System Operators (ENTSOG) guides ACER in this decision;
- ACER should accept the outcome of an open season process[12] as sufficient justification for a cross-border expansion project; and
- ACER should define harmonized economic conditions (e.g. the weighted average cost of capital) for TSOs if they invest in the expansion of European transmission infrastructure.

These suggestions would not eliminate the role of national regulatory authorities (NRAs) in infrastructure investments of European importance. For example, we see an important role for NRAs in facilitating the (national) permitting processes.

Timely expansion of infrastructures requires an effective regulatory framework. A GTM should promote any development of new infrastructure that market players are prepared to pay for and to commit to on the basis of Open Season processes. After all, any new infrastructure strengthens competition, enhances security of supply and reduces the probability of congestion. Where this involves “transit” across entry/exit (e/e) zones, as may be the case for long-term import contracts, a harmonized approach between TSOs and/or other pipeline investors as well as NRAs will be required.

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[9] We believe the suggested market-led model of ERGEG should be the way forward, as it puts market participants in the driver’s seat. See for more information: <http://www.energy-regulators.eu/portal/page/portal/EER_HOME/EER_CONSULT/CLOSED%20PUBLIC%20CONSULTATIONS/GAS/Gas%20target%20model/Tab2/4_110616_impl%20econ%20investments.pdf>.

[10] Note that in the MECO-S model, it is suggested that this period should be 2-3 years. We think that such a long lead time would significantly harm the functioning of the gas market.

[11] This lead time includes the definition of the investment requirements, the organization of financing, discussions with permitting authorities and the internal evaluation of the business case by the TSO and its shareholders. In addition to this, governments or regulators have to take a decision on the usefulness of the proposed investment and regulators have to decide on tariffs and economics.

[12] The conclusion of long-term transmission contracts by market participants exceeding the currently available capacity should constitute sufficient ground for a cross-border investment.

## 3.5 Third Party Access regulation of infrastructure

In this section, aspects of Third Party Access (TPA) regulation of LNG import terminals, gas storage and transmission will be explored. These are facilities that need some form of oversight. But not all facilities need to be strictly regulated. Regulation should be adjusted to the business environment, its competitiveness and the conditions and drivers for new investments. The common aim of industry and policymakers should be to grow towards an EU gas market with less "hands-on" regulation. In general, where new investments lead to more competition between infrastructures exemptions should be used.

### *3.5.1 LNG and storage: full exemptions should become the rule[13]*

LNG import terminals could be considered as extensions of production facilities, as is done by the US regulatory authorities on the grounds that most LNG terminals are indeed developed for access to the US market by LNG suppliers. Furthermore, ample LNG regasification capacity is currently available, under construction and planned, implying that there will be more competing opportunities to access the European market in the future. For these reasons regulated access to these terminals should be limited to exceptional cases; exemptions should be the rule. Parties owning capacity in LNG import terminals under long-term arrangements should be able to secure similar capacity arrangements in transportation downstream of the terminal, if they so require.

Similar to LNG-terminals, storages are not monopolistic in nature in most parts of the EU. There are currently not only a number of gas storage projects under construction but also other competing sources for providing flexibility. Therefore, also for storage the aim should be that exemptions should become the rule.

### *3.5.2 Transmission*

Currently, transmission is considered to be a non-competitive activity, hence requiring more regulation of capacity allocation, congestion management and tariffs than LNG terminals and storages. However, the need for regulation of capacity allocation and congestion management decreases with the progress of effective unbundling under the Third Package[14], as the TSOs' incentive to offer discriminative access to third parties will disappear. Encouraging more competition in pipeline development could also help to reduce the need for regulatory prescription, also for tariffs, as competitive bidding for transmission provides a basis for commercial, market-reflective tariffs[15]. This in turn opens the door for exemptions[16]. It would be useful to develop, at the EU level, *ex ante* criteria for exemptions for LNG-terminals, storages and transmission. ACER could play an important role here. This could speed up the decision processes, prevent discrimination of potential projects, and would decrease the regulatory risk for potential investors[17].

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[13] Regulation addresses capacity allocation, congestion management and tariffs. For LNG imports and storage, exemptions could apply to all three rather than for certain elements, as can be the case with transmission lines (see footnote 16).

[14] We assume that the Third Package provides sufficient instruments for regulators to enforce true unbundling to those TSOs which are (still) not ownership unbundled. Regulators are in charge of monitoring and taking appropriate actions so that this effectuates.

[15] See also Ascari (2011), "An American Model for the EU Gas Market".

[16] Please note that exemptions can be partial, meaning that they sometimes do not apply to reverse flow capacity and/or, if it concerns a transit link, to gas transport intended for the domestic market. Furthermore, obligations in terms of congestion management and unbundling can be put forward, while in all cases tariffs are unregulated. According to Article 36 of Directive 2009/73/EC, no exemption from offering unused capacity on the market and from entitling users to offer their contracted capacities on the secondary market can be granted.

[17] An interesting question remains as to what to do after the exemption has expired. We propose treating the formerly exempted infrastructure as if it were a new investment. Thus, if, for example, new LNG

In a well-functioning market, for non-exempted gas transport, tariffs of services should be based on the "user pays" principle, which is also obliged in the Third Package[18] and reiterated in the latest Energy Infrastructure Package[19]. Cross subsidies between long- and short-term capacity contracts as well as between short- and longer-distance transport should be minimized to limit distortions in competitive positions between market participants. Differences in transmission tariffs for long-term and short-term contracts should be reflective of the actual risk distribution between the TSO and the shipper (see also Box 6). The larger the entry/exit zone, the larger the risk of cross subsidies between long- and short-haul transport (see also Section 4.4).

### Box 6: Tariff differentiation

There is no question that users of a network should be treated the same under comparable circumstances. However, there is no necessity to apply the same tariffs to new and old contracts, to short-term and long-term contracts, and/or to local and cross-border (transit) customers. Just as the gas price, the use of storage, the use of an LNG import terminal (and actually any transaction in any commercial business environment) depends on the terms and conditions of the transaction, e.g. the allocation of costs and risks of services, so pipeline tariffs should reflect the costs and risks and other conditions of the capacity transaction. This allows its owners to make balanced commercial judgments and avoids creating unfair commercial advantages and disadvantages by means of tariff cross-subsidies. Moreover, socialization of costs (may) also paralyze investments, as participants which do not benefit but have to pay (due to socialization), will grasp every opportunity to frustrate such an investment.

Tariffs for new (cross-border) pipelines should of course be sufficient to make investments in new transit capacity economically attractive. Tariffs could be based on the LRIC-approach, setting transmission tariffs on a long-term basis, reflecting actual capital expenditure as well as economies of scale, and translating these costs into "perpetual" (i.e. fixed or indexed) tariffs[20]. Together with tariff differentiation (see Box 6), firm tariff agreements for the duration of a contract could also be effective in improving the economics of transmission investments. The regulatory framework should endorse the concept of tariff certainty by allowing for or providing regulated (standardized) transmission capacity contracts with fixed (indexed) tariffs. In addition, non-standardized, customized transmission contracts could be offered by TSOs, with firm tariffs reflecting the conditions, under appropriate regulatory oversight, in line with competition law. This also includes the provision of coordinated capacity booking for multiple-country transit capacity.

Unused contracted transmission capacity could be made available by secondary markets. Contrary to the Second Package, in the Third Package[21] shippers are granted the explicit right to sell their capacity on these markets. These markets should be established to facilitate shippers in selling temporarily unused transmission rights to other shippers and/or traders. Secondly, TSOs could, in agreement with the shippers who have booked long-term capacity, sell this capacity on an interruptible basis. Both secondary markets for transmission and interruptible capacity sales are easy to implement (or already available). Moreover, such a (voluntary) system does not

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capacity were to be granted an exemption, the same should be the case for existing competing capacity. Such an approach would optimally serve the market, as regulatory intervention for existing infrastructure would immediately harm the investment climate for new infrastructure, and it is highly likely that by then infrastructures would be competing with each other.

[18] See Article 13(1), Regulation 713/2009.

[19] See: Communication from the Commission, "Energy Infrastructure Priorities for 2020 and Beyond", 16.

[20] See: Correljé, De Jong, De Jong, (2009) "Crossing Borders in European Gas Networks: The Missing Links".

[21] Regulation 715/2009

interfere with long-term (transmission & commodity) contracts and does not harm the attractiveness of the EU market to (foreign) gas suppliers. In the Third Package[22], various new transparency requirements will facilitate this process.

## 3.6 Concluding remarks

The backbone of the CIEP vision consists of attracting supply, maintaining contractual freedom, recognizing regional differences and promoting market-paid investments in gas infrastructure.

We observe and acknowledge that there are large differences in the functioning of the gas markets of the several European regions: Northwest, Southeast, central and Southern Europe. It is also obvious that these differences give rise to large local variations in the performance of these markets, in terms of their security of supply and their economic performance. We are convinced that these differences are of a genuinely fundamental nature; they are based on geographical and economic attributes, like the distance from alternative sources of gas supply (pipeline, LNG or potential unconventional gas) and the density of consumption, the presence of viable alternative sources of energy, and the level of national income and the productive structure of the economies. In economic terms, the country-specific sets of supply and demand curves will always show a huge variation. Moreover, there is still a considerable variation in the general institutional environment of the EU Member States. We also acknowledge that currently there may be ineffective gas industry regimes in several countries. Yet, as we argue, imposing a "one-size-fits-all" framework of market governance for the entire EU market will be counterproductive in solving the problems observed in the various regions. Instead, we take the view that different "environments" require different solutions in terms of gas market coordination, to be developed by the market parties, where needed with support from − and facilitation by − the European and the respective national institutional and regulatory frameworks.

The European gas market cannot be "shoe-horned" into the theoretical economic model of the neoclassical market. Proposals for a prescribed market design based on that approach and/or proposals to experiment with novel approaches for the access to infrastructure may actually harm the functioning of the European gas market. Europe should concentrate on attracting imports; it cannot afford the luxury of experimenting with its gas market design.

The EU should aim to provide regulatory certainty. For new cross-border investments it should also provide a consistent, supportive and integrated approach. Without an assurance that regulatory policies will be consistent and applied fairly, market players may be unwilling to bear the risks associated with doing business in the gas market and investing in energy infrastructure.

In the CIEP vision for the GTM, no new market design is needed. Rather, we propose utilizing currently available measures to allow the gas market function. We believe that there are significant advantages of the CIEP vision for a GTM, in relation to other proposals, namely that our proposed measures can be implemented quickly, without major obstacles, and that it complies with the current way of doing business in the market. Therefore, it does not impose significant additional risks to the functioning of the European wholesale market.

[22] Idem.

# 4.

# Reflections on the current GTM-discussion

## 4.1 Introduction

In the current GTM discussions about a well-functioning European gas market, some participants focus on the lack of *liquidity* of gas spot markets and on the lack of *price alignment* throughout Europe. In our view these characteristics are as such invalid measures for assessing how well the EU gas market(s) function. The following sections will set out our analysis of these criteria and the proposed measures to achieve them.

As explained in the previous chapter, we take the view that any proposed measure should not limit the ability of market participants to conduct the commodity business as they deem appropriate within the framework of energy policy and given the changing market circumstances and regional differences. Moreover, we have not seen any evidence that the costs of the proposed measures justify any perceived benefit, nor have we seen a balanced evaluation of alternatives.

## 4.2 Liquidity

Some participants suggest that the well-functioning of the EU gas market is primarily dependent on the size of spot markets. They argue that the liquidity of a market is the main measure for its success. The inherent conclusion is that it is necessary to expand the share of spot trading in those markets and that this should and can be achieved through market design.

In the preceding chapter, we argued that the fundamentals of the gas market do not match the characteristics of "ideal" markets as assumed by standard (neo-classical) economic theory. Consequently, using the liquidity of spot markets as a performance measure for the success of the EU gas markets is not valid. If a market player which has been purchasing gas from the spot market elects to buy gas under a long-term import contract instead, this will improve the security of supply of that company's portfolio and of the consumers it services. However, it will manifest as a reduction in the liquidity of the spot market. So, judging on the basis of spot market liquidity, such an action would be regarded a setback. Yet if security of supply is important, the action should be seen as positive.

## 4.3 Price alignment

The objective of price alignment as presented in, for example, the MECO-S target model[23] can be characterized as the quest for the Holy Grail. Of course, market prices in various parts of the EU interact and affect each other, as long as there are no obstacles to prevent economic transactions and investments. This form of price alignment is a normal phenomenon and a logical outcome of economic behaviour in the gas market[24].

[23] Glachant (2011), "A Vision for the EU Target Model: The MECO-S Model, Florence School of Regulation.
[24] C.J. Jepma (ed. 2011), "Gas Market Trading", Energy Delta Institute.

However, it is a mistake to interpret price alignment as the need to achieve equal prices across the EU. Overall price alignment would only be achieved as a theoretical equilibrium end-state, when all trade has been done. In reality, gas markets serve a dynamic and continuously shifting pattern of supply and demand, giving rise to price movements and price differences between those markets. A well-functioning European gas market requires competitive prices. Not equal prices, but current and expected price differentials are essential to steer gas flows from pipelines, storages and LNG terminals to the different regions in the EU[25]. Moreover, structural price differences between areas form important market signals towards the optimal location of new energy infrastructure[26].

Therefore, it should be accepted that gas prices will vary regionally and over time, according to shifting regional market circumstances, both structural and short-term. Market players will seek to act where differences can be economically and commercially bridged[27].

This statement does not imply that price alignment will not occur in Europe. On the contrary, prices in markets may converge. Directly after the opening of the Balgzand Bacton Line (BBL), prices in the UK (NBP) and the Netherlands (TTF) converged. However, if they would diverge again, we would not see that as a sign of a more poorly functioning market, but as an indication for market participants as to where investments in new infrastructure for Northwest Europe should be located.

## 4.4 Proposed measures for liquidity and price alignment

In the previous sections we outlined that using liquidity and price alignment as objectives would point in the wrong direction, because of the fundamental characteristics of the European gas market. They could, however, be useful indicators, together with some others, in monitoring spot market developments, but they are not indicators of a well-functioning market[28].

As part of the pursuit of liquidity and price alignment as objectives, various measures to boost (short-term) liquidity and to stimulate price alignment are being proposed. Some examples are mentioned below.

In order to increase liquidity within an entry-exit zone, it is proposed that:

> a) entry-exit zones should be obliged to merge if they do not have the following characteristics: 20 bcm of turnover and 3 sources of supply and a HHI-index of, preferably, below 2000[29]; and
> b) market players be obliged to buy, sell and trade on one single location (virtual point)[30].

[25] In the MECO-S-model, the goal is '*... Alignment of short- and mid-term wholesale gas prices between those functioning wholesale markets shall be fostered as much as the (at any time) existing transport infrastructure allows....*'

[26] In an imaginary Europe with gas price equality, all new LNG terminals would be built in Spain (or even Greece), while Europe has to build large and expensive transmission lines to bring that gas to (e.g.) the UK.

[27] In other words, price differentials between two markets can also result from factors other than those related to market abuse. Please note that measuring price differentials is not an easy task, because of continuously based transacting.

[28] See also Glachant (2011), "A Vision for the EU Target Model: The MECO-S Model, Florence School of Regulation", 8-10.

[29] Apart from these criteria, churn ratios are also mentioned (see: <http://www.energy-regulators.eu/portal/page/portal/EER_HOME/EER_CONSULT/OPEN%20PUBLIC%20CONSULTATIONS/Gas_Target_Model/CD/C11-GWG-77-03%20GTM%20PC_5-July-2011.pdf>). Note that when measuring churn, the traded volume should be based on all places where prices are formed (the exchange, OTC and bilaterally) as well as on all products traded.

In order to increase price alignment by dealing with hoarding (exert market power)/contractual congestion and to stimulate short-term trading, it is proposed that:

c) it be obligatory to reserve 10-20% of transport capacity for short-term trading;
d) contractual (re)nomination rights be required to be limited by stringent UIOLI rules;
e) explicit auctioning be used mandatorily, also for long-distance transport; and
f) the way implicit auctioning is conducted in the electricity market for day-ahead[31] be considered.

All these proposals have, by definition, a prescriptive character, which limits the ability for market players to position themselves in the manner in which they wish and to engage in transactions of their choice, in line with their perception of the evolution of the gas market.
Instead, we have concluded that a well-functioning and competitive European gas market primarily requires contractual freedom, so that market players can optimally position themselves to attract new gas flows and have the flexibility to adapt to changing market characteristics.

The focus of these proposed measures will not support the growth of an import-dependent EU gas market. None of these take account of any impact on the objective to attract new gas flows, including long-distance, intra-EU transport. In fact, external suppliers have warned that such proposals would reduce the attractiveness of the European gas market.

As mentioned in the previous sections, we do not believe that the perceived benefits[32], which are by definition limited as they focus only on the short term[33], will outweigh the drawbacks. These drawbacks are also touched upon in recent papers about the GTM[34], but in our opinion they deserve more analysis. For example, a merger of zones inevitably further widens the gap between physical and virtual transport and consequently enhances the risk that local consumers cross-subsidize transit traversing the zone[35]. Furthermore, in a number of cases the basis for the proposed measures is arbitrary. In addition, most proposals shift risks and costs[36] from short-term traders, who would primarily benefit from them, to other market participants, both consumers and producers.

Irrespective of our concern with the use of liquidity and price alignment as criteria for a well-functioning market, there are alternatives which contribute to facilitating short-term trade without showing the same drawbacks of the proposed measures. While these are not new and exciting, it does not make them less effective. Secondary capacity markets and interruptible capacity will also eliminate hoarding of scarce capacity and may even contribute to price alignments. Interoperability measures (e.g. harmonization of gas quality) and transparency

[30] Note that even in the US there are only 1 to 3 liquid hubs, while about over 25 exist, which evolved naturally.
[31] Market coupling on the basis of continuous trading, as it is currently tested in France, could prove to be a better alternative, as it does not point out the day-ahead point in time as the necessary gate-closure time, making it more compatible with the current way of (continuously based) gas trade. Still, cost reflectivity should be taken into account, meaning that instead of socializing the involved transport costs, as is the case with coupling in the electricity market, each specific beneficiary of a coupling process should pay.
[32] We support Boaz Moselle's suggestion to analyze the extent of contractual congestion, as the Energy Sector Inquiry was conducted about 5 years ago and the extent of price convergence.
[33] It should be noted that while the costs of certain measures, such as the merger of zones, have been quantified in certain cases, the benefits are merely qualitatively assessed.
[34] Ascari (2011), "An American Model for the EU Gas Market". Moselle (2011), "Market Design for Natural Gas: The Target Model for the Internal Market". Glachant (2011), "A Vision for the EU Target Model: The MECO-S Model". Frontier (2011), "A Target Model for the European Natural Gas Market".
[35] Similar behaviour as mentioned in footnote 26 can be expected with the merger of zones.
[36] Please note that the cost could also increase through the implementation of several measures as explained by, for example, Boaz Moselle.

obligations (as obliged in the Third Package) would also facilitate (international) trade. In our view, more short-term trading does not require enlarged entry-exit zones, but can also be facilitated by adequate access to cross-border transmission. Finally, an attractive investment climate would eliminate scarcity and increase both the competiveness (more choice) and the security of supply (spare capacity).

The US has had long experience in gas market liberalization. This market is characterized by contractual freedom and market-paid (competing) investments in infrastructure, supported by the FERC. The result is a flexible, highly competitive "internal" market. The US market is in many ways very different from the EU market. Nevertheless, its experiences with liberalization could offer valuable lessons. We suggest that the EU take these lessons into account as part of its own reflections on the future of the EU market[37].

[37] We welcome the contribution of Sergio Ascari with "An American Model for the EU Gas Market" of the Florence School of Regulation to the debate.