

## **“A new EU Gas Security of Supply Architecture”**

*A report on the Workshop organized by CIEP in The Hague on 7-8 July 2011*

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### **1. Introduction**

We need a European approach to ensure gas security of supply within the EU. Repeated regional supply shortfalls have sparked media outcry. Europe is not only facing the inadequacy of indigenous energy within the EU. High energy prices and the increasing reliance on imports from third countries is reason for unsettling concern. In fact, according to many scenarios it is anticipated that by 2030 up to 80% of the EU’s natural gas consumption would have to be imported.

Notwithstanding such anticipation, the existing EU energy policy addressing gas security of supply is inadequate. Particular provisions concerning external relations were and remain few and far between. The rather weak EU energy policy in this area is in essence comprised of the persisting systematic prioritization of the internal market goal and, at this stage, of a vocal but inconsistent common security of supply policy. Bilateral energy deals with third countries prevail while undermining the ability of the EU to ‘speak with one voice’. The missing provision of detailed security of supply rules leads to the proliferation of national, uncoordinated and counterproductive approaches, as well as the perception of a lack of long-term strategy in order to address vulnerabilities. Key institutional problems of EU policy addressing gas security of supply result from the pervasive effects of 27 diverging predilections for market-based energy procurement, natural resource endowments, national champions interests, foreign policies and geographic neighborhood specificities, as well as the unwillingness of the Member States to give the rudder to a supranational body.

The Commission reacted with a rather fragmented 2nd Strategic Energy Review setting targets for 2020 and beyond (2050). Recently, several specific instruments have been introduced addressing primarily short-term security of supply crises, such as the infrastructure package or the new Regulation on security of supply. Moreover, the Commission will present a communication on the external dimension of energy policy in 2011, which will identify ways to reinforce the efficiency of EU policies with regard to the external relations in this area. The EU announced it will also sign energy framework agreements with key suppliers and transit countries, covering for instance market access issues like network development, the draft strategy states. Formulating the policy is one thing. Starting to work on implementing paths, developing the requisite policy and legal instruments aligned to deliver, is much more challenging. Are we on the right track to meet our stated objective – a true European supply security policy? Is the current architecture on which the EU gas security of supply policy is built able to deliver those responses needed in order to meet the growing risks and changing realities EU gas security faces? How should European institutions and regulation adapt and respond?



The Clingendael International Energy Programme, together with Fondazione Eni Enrico Mattei, the Loyola de Palacio chair of the European University Institute and Wilton Park have organized a series of brainstorming workshops in order to discuss a possible new architecture for EU gas security and in particular issues related to EU external relations and their relations to gas infrastructure.

The following report is based on the discussions that took place during the second Workshop organized in The Hague on July 7-8. The workshop analysed the issue of EU Infrastructure and Market Design in its relation to the EU external supply dimension. Three basic questions were discussed and analysed, i.e. the attractiveness of EU gas markets for external suppliers, with a special focus on the Southern Corridor, the broader infrastructure challenge and, as a third issue, the more general regulatory challenge. This report will be further used as input into the final publication about the project on a new EU Gas Security of Supply Architecture.



## 2. Global Gas Supplies to EU Gas Markets

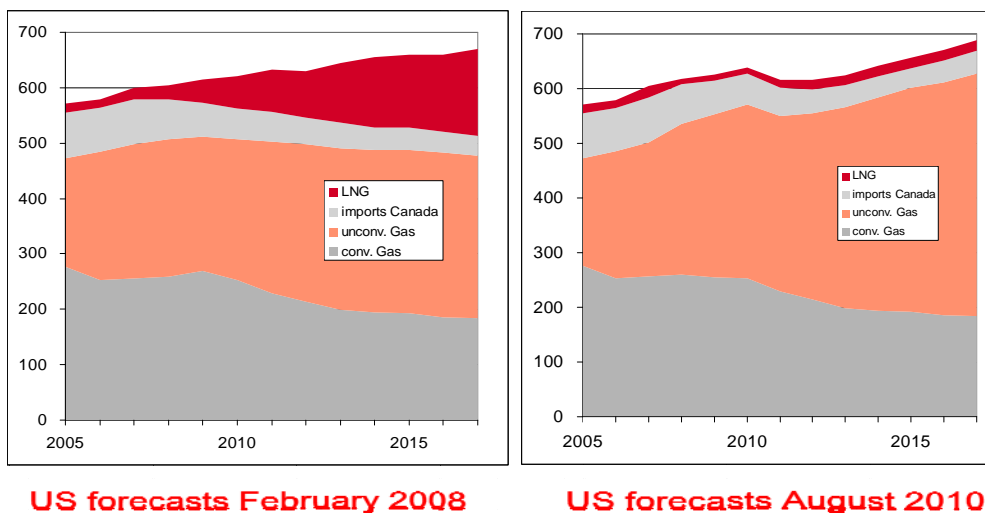
In *setting the scene* for this issue, a global overview was given with some focus on the three large regions in the world where gas is playing a dominant role in the fuel mix.

### *The US Market*

Starting with the US, it is to be underlined that in the first decade of this century a steady growth of gas consumption took place, notably in the power sector. Furthermore, that growth brought an increase of US-consumers calling on global markets outside the US. This led to a strong increase of LNG-imports, facilitated by an expansion of LNG import-terminals. As to future demand and supply scenarios, the US-DOE's Energy Information Administration in its yearly outlooks forecasted in February 2008 a steady increase of LNG-imports up to the end of 2010. Some 16 months later that forecast was dramatically changed, leading to a stabilisation of early 2005 import-levels (figure 1). The reason for this dramatic change had everything to do with the increase of domestically produced unconventional gas. One could conclude from this for the next decade or so that a US call on global gas supplies from abroad is not likely to happen; some experts are even forecasting that the US might become an exporter of LNG to global gas markets.

### *The Asian market*

Existing and traditional demand for natural gas in Japan, South- Korea and emerging markets in the South-East (including India) will continue or start to play a stronger role in the region's supply-demand balances. The Fukushima incident and the resulting turmoil in Japanese energy policy making will have a further impact on the quest for gas supply in that country. Although it is too early to predict what impact the Fukushima incident will have on Japan's energy needs, it may be realistic to accept that Asian demand will continue to call on global gas markets.



**Figure 1. The US Gas Supply basis**

More particular, especially China will increasingly focus on the role of natural gas. One might foresee that due to the need to "green" the energy supply system in China, natural gas has a major role to play. If this scenario plays out, large amounts of gas will have to be imported,

especially in the high growth coastal areas. In anticipation thereof, the number of LNG importing terminals is increasing from the present 14 bcm to more than 80 bcm in 2020. China is obviously one of the fastest growing LNG-markets worldwide and suppliers from Turkmenistan to Australia are attempting to widen their share in Chinese markets.

### *The MENA region*

The MENA region, covering the Middle East and North Africa, has some 45 % of the world's remaining gas reserves, but contributes for only around 20% to the world's output, bringing arguments for further export potentials. However, it is faced with growing gas consumption, especially driven by the demand for power generation. Booming electricity consumption is seen as a consequence of the region's sustained economic and population growth together with artificially low prices. Hence some 70% of the region's gas output is consumed locally, a trend which is expected to continue into the future. Domestic markets will therefore strongly influence gas export potentials. Social pressure in the region, gathering momentum with the "Arab spring", and stalling domestic price reforms will remain key factors. Even if there are business opportunities to expand the domestic supply basis, the likelihood is that the driver will come more from a direct gas monetization policy to create domestic job opportunities in energy-intensive industries. Therefore, gas in the MENA-region will more and more become important in a domestic way, with a growing onus on resource nationalism. EU gas markets and EU consumers should therefore be realistic in their assessments of the role of gas supplies from the MENA-region.

### *Russia*

Russia was, still is, and will remain the EU's primary external gas supply source, covering today some 30% of total EU gas consumption. Secure supplies need sufficient reserves, reliable routes to the market, the necessary upstream investments and the affordable conditions and prices to be able to respond to the actual demand. On the other side of the equation, EU markets were, are and will continue to be Russia's primary export market for its gas, covering some 70% of total exports with the balance made up of gas exports to the CIS and Far East. Russian gas however is still flowing for around 80% via a single transport route, so this would make the case as well for diversifying transport routes of that supply base as the recent opening on the 8<sup>th</sup> of November of the Nord Stream pipeline that links Russian gas export directly to its main EU import market in Germany shows. All Russian exports to the EU will remain pipeline based, and when the EU demands more gas, and this gas will come from Russia, more pipeline capacity will be needed. It is therefore relevant to focus on these transport routes, and more in particular on the potentials of the Southern Corridor and the South Stream project.

The new pipelines bringing Russian gas to EU markets, i.e. the Nord Stream and the South Stream are on the basis of joint ventures with the EU gas industry, highlighting confidence in future demand and willingness to share the risks in projects that have life-spans of several decades. This would also require mutual trust and reliability, also in political and regulatory terms. The history of the EU gas directives were not designed to be applied outside the internal EU market and the EU's external energy policy strategy was not always fit to meet its global supply security agenda. The forthcoming discussions in the EU on both the external policy dimension and the new infrastructure policy will have to take due account of the fact that new routes, such as the South Stream project or Southern Corridors, are not only bringing Russian or Caspian gas to the EU, but also through the EU (see figure 2). This would

underline as well that projects should be considered as benefitting the EU gas supply basis and that those that meet the criteria that define the European interests would therefore receive the necessary priority treatment.

### *The South Stream project*

The project, connecting Russian gas through the Black sea to South-East Europe is on track, with feasibility studies on the offshore and onshore sections being integrated and finishing by the end of 2011. The routes coming from Russia are going through the Black Sea, the Turkish economic zone, into Bulgaria. There is still an option for landfall in Romania, but Bulgaria is the base case, with one string of line going southward via Greece with a further offshore crossing to Italy. There are still a number of options for routing through the Balkans, allowing various direct supply connections from Russia to the EU. Capacity is planned to be 63 bcm a year, translated offshore into 4 lines of 15 bcm that will gradually be taken into operation. Final investment decision is scheduled for 2012 and first supplies are planned for 2015. The gradual implementation is also important from a regulatory point of view, because the receiving infrastructures have to be put in place as well. So part of the lines will have to be build within the EU, which is for instance different compared to the Nord Stream project where the supplies are delivered on the EU-borders. This is challenging, as the FID needs not only to take into account the engineering side and the impact assessments, but also the regulatory regime needs to be clarified. This is challenging the more so as the regulatory framework is not fully clear to all market participants concerned. The Third package has not yet been implemented in any of the participating countries and it is to be understood that the projected is an integrated one, needing exact clarity on the full regulatory status.



**Figure 2 The South Stream project**

South Stream is a privately funded project in the same way that Nordstream is. And as long as the basic idea of EU energy policy is that the networks and the supplies have to rely on private investment and not on public funds, the regulatory framework and the policy framework have to be encouraging enough to investors and their lenders to make their

investment decisions on a level playing field. The budget estimation is some € 15.5 billion, of which about two-thirds has to go to the offshore section. South Stream shareholders are fully confident to be able to raise the funds necessary, with Nord Stream as a good reference case. Although being a smaller project with just an offshore section, and hence being less complicated from a regulatory point of view, Nord Stream partners were able to raise about 70% of the capital on the financial market, a clear indication of trust in the longer term role of import-gas in the EU energy mix.

#### *South Stream and the EU internal market*

South Stream has some specific characteristics with the EU internal market that would bring many observers to arguing whether or not it will go or not go. The off-shore engineering challenges are real hurdles, also with respect to the environmental impacts, but it would seem that the on-shore regulatory clarifications are the most critical ones, especially taking into account the transit-countries that are member of the EU. Here is a large difference with both Nord Stream that is “just” landing on the EU-border and Nabucco, where regulatory priority focus received large political backings at EU-levels as it regards new market entrants. The South Stream sections in the EU all have to deal with the EU’s TPA-rules, where the option for exemptions might be a difficult one to get. And as long as these issues are not settled, other shippers than Gazprom, if any, might be very reluctant to book. The question may also be relevant to what extent the South Stream would be facilitating to “send back” commercially gas flows from say Baumgarten in Austria to for instance Serbian or Greek markets.

South Stream will directly have to interact with European gas grids, where Nord Stream does not. Regulatory conditions require large involvements of national authorities in the connected countries, together with the European Commission. South Stream did not (yet) receive the status of a project of European Interest and it is not clear yet what the final criteria for such a status would look like. In addition, there will also be interactions with energy market regulations, where details are determined by the still developing technical characteristics of the project. As an example, in some of the involved smaller Balkan countries, annual capacity options under discussion range from 4 to 20 bcm.

The question of TPA will be a key issue, pending the final integrated feasibility study of the project. Unclear are also the precise rules coming from the national implementations of the Third package. Especially the question needs to be raised on the exemption clauses and its cross-border impacts, bringing also the role of ACER in the issue, with a further uncertainty. Some would argue that the TPA-issue could be settled when EU companies would be allowed to jointly buy Caspian gas via the CDC (the Caspian Development Cooperation) and shipping this via the Southern gas Corridors, including South Stream. This does as yet not seem to be a realistic avenue, as current understanding on shipping remains that this is just for Gazprom. But it is not be exclude that some larger packages may be thinkable on the project in relation to the broader issue of Caspian Basin gas for the EU.

If the regulatory issues would take some 5 years or so, postponing further the FID, the Southeastern gas market could be developing further, including hubs and other infrastructures and hence South Stream could in the end follow the Nord Stream model and land at the Bulgarian coast with far less regulatory burdens. This is of course contrary to the present project set-up and thinking of the stakeholders which is based on a large onshore

section where the national stakeholders will have a 50% stake in their respective national sections. Just landing on the coast does not seem to be realistic as well, as some 60 bcm has to be plugged into the system and expanding the necessary market infrastructure for taking that large amount will not be realized in 5 years time or so.

As a more general issue on the Third package the question arises to what extent a pipeline starting outside the EU jurisdiction would fall under that jurisdiction. There are no precedents for that, as the Norwegian pipelines to the EU are all falling under that jurisdiction and Nord Stream stops at the EU-border but does not enter it. All these regulatory issues are adding to the complexity of the project, require difficult assessments and high-level discussions and decisions. And in the end, there is always the financing question.

### *The Ukrainian issue*

South Stream as it stands gives ground for additional geopolitical and other reflections in relation to the alternatives for bringing gas to the EU via the Southern Corridor. Whereas Nabucco and some other options are focusing on non-Russian supplies and could be considered as “new gas”, for South Stream that is less certain. Therefore, it could be seen as a project that would run the risk of drying out existing routes for Russian gas to the EU, i.e. Ukrainian ones. And this perceived overlap of politics and geo-strategy is part of the political discussions. On the other hand, South Stream stakeholders see the project primarily as a business venture, including diversification of supply routes. Upgrading the Ukrainian system needs also major investments in the ranges of several billion euros. And the political and regulatory conditions in that option are not negligible either. They do not see the argument to dry out Ukrainian routes as this route would continue to ship large parts of Russian supplies to the EU anyway.

There is the argument that further supply diversification might lead to a loss of leverage for the Ukraine towards Russia in addition to losing income from transits. This might bring a shift in Ukrainian policy, such as turning “east” again and (re-)integrating into a Russian energy province. This could be a geopolitical concern for the EU, also in gas- terms as Ukraine has very large gas storage capabilities. These facilities could be very important for the Southeastern European market and with the changing role for gas in power generation, also for the electricity market. This brings a challenge to the EU’s energy diplomacy, also in relation to Ukraine’s membership of the Energy Community Treaty.

Adding pressure on the Ukraine however might be a joint EU-Russia exercise and also be beneficial for the Ukraine in the medium term, as one has to realize that present Income from Ukrainian gas transits is mainly flowing to a small number of interest groups. So a decent and reliable supply route might need to have a break-up of the present system and allow markets and normal business practices to emerge. This would need a joint EU-Russia strategy because we do not want Ukrainian consumers to face gas shortages. This is a further example of the complexities in the question of Ukrainian gas. A question that has its own agenda and specifics, noting that not every project for a LNG-terminal in the region nor even the Nabucco pipeline or other Southern Corridor project are seen by Kiev as a threat to Ukrainian gas transits to EU markets

### *Supply routes from the North*

Pipeline business from the northern perspective is becoming more and more interesting, also because of the unbundling developments. As a business on its own, where shippers have an interest in using it and booking for it, investors are also coming on board. As a nice example, EU traders are seeing opportunities to use the Norwegian transportation system to arbitrage between the UK and the continent. Interactions between that system, the BBL and LNG-imports are adding to market liquidity and requiring new approaches, also regarding system interoperability and integration into the EU. Also from that perspective, Norway sometimes feels itself somewhat underestimated by Brussels, as Norwegian gas, the Norwegian gas system and industry can bring important contributions to the EU gas supply architecture.

Another evolving perspective is the gas-to-electricity balance. Developing oil and sending it to markets is still a one-of-a-kind business. The Norwegian energy ministry is oil and energy. Oil is about exporting oil and gas. Energy is about making money on electricity and having a functioning market. As for gas and its prospects of using it as a flex-fuel in the fuel mix for power generation, a much wider play-of-game would arrive. Power generators are entering that game and are having different criteria than the more conventional gas traders. And since Norway has also large stakes in the hydro-resource basis for the EU power market, some different sums are being made with different outcomes. So for Norway, choices are in the making on where to put the emphasis in the gas-to-power equation.

Gas suppliers, including Norway, are reacting on market signals as well as on policy signals. If, for instance, Brussels is pleading for diversification and flexibility in supplies, suppliers are picking up on that. It will have impacts on the way in which capacity is booked, open seasons are being used, options are created without the need to use them and the various price clauses in the long-term contracts are being explored and even tested. Algerian Sonatrach and Russian Gazprom were also confronted with these market demands and gave clear negative signals. Norwegian reactions were perhaps a little more prudent, being a somewhat more kind of captive producer due to its precision. It all underlines the notion of the way markets are working, emotions are playing a role and policy makers need to take that into account. If the EU wants to establish a sound and secure supply architecture, it has to be part of that game.

### *Shale gas*

The future EU gas supply situation needs also some consideration as to the role of *shale gas*. Wide prospects may be coming available in continental Europe, and especially in the central and eastern parts of the Union. These prospects have to be faced in a realistic way, understanding that what is happening in the US or elsewhere when CBM (Coal Bed Methane) is involved might not be the model for Europe. Economic and environmental concerns, together with different regulatory regimes, might bring these perspectives in a more realistic mode and could avoid the occurrence of a bubble in unconventional gas deployments. Figure 3 gives a short overview of the European potentials, where the Norwegian resource base should not be underestimated. On the other hand, it may be questionable if Norway would be interested to develop these resources, as they still have many other opportunities to develop. European countries that are gas-importers face a different situation, as it would help them to manage their gas supply basis in a more stable



and balanced way. This would also be the case for the UK that has also large coal bed-methane potentials close to markets.

Top 10 European shale gas resources*	Natural gas reserves** (Tcm)	Importers (✓)/ Exporters (x)	Shale gas resources* (Tcm)	Shale gas production by 2020***
Poland	0.16	✓	5.30	✓
France	0.01	✓	5.10	?
Norway	2.04	x	2.35	?
Ukraine	1.10	✓	1.19	✓
Sweden	–	✓	1.16	?
Denmark	0.06	x	0.65	✓
UK	0.25	✓	0.57	✓
Netherlands	1.39	x	0.48	?
Turkey	0.01	✓	0.42	✓
Germany	0.17	✓	0.23	✓
Others			0.54	

Source: World Shale Gas Resources: An Initial Assessment of 14 Regions Outside the United States, April 2011

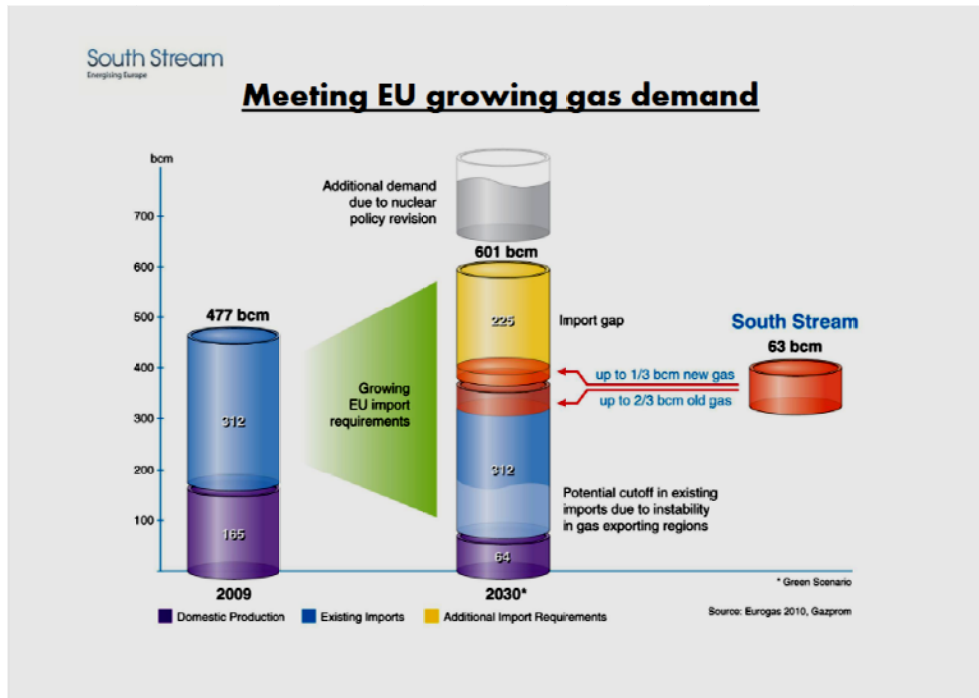
\* Technically recoverable shale gas resources  
 \*\* Proved conventional natural gas reserves  
 \*\*\* Sund Energy estimates

**Figure 3 Shale and other unconventional gas potentials in Europe**

New unconventional gas technologies, other than shale gas, could also play a role, especially when both the vast potentials of hard coal that exist in the EU and the options for biogas or green gas are considered. That could be done via the CBM-technology, but maybe even more so the technologies of underground gasification with power stations on top of them, with innovative carbon sequestration and underground storage or nearby re-use options around them. As to greening the gas on the basis of biomass or biowaste, new roads are being explored, especially in the Netherlands and Germany. If these options would be rewarding to be further explored, they again might have an impact on the infrastructures needed, both in gas transmission and in storage.

#### *Supply routes and EU market needs*

EU perceptions of its own role and the need for a different gas supply architecture should consider that the EU share in the global gas market is diminishing. There are many projections on the EU's future gas demand and import needs, and these have impacts on investments in transport routes. Figure 4 gives an indication as seen from the South Stream perspective.



**Figure 4 EU gas import needs and options**

The rather common expectation that the role of LNG might improve the overall external gas supply base for the EU has to be reconsidered. Although the increased role of LNG-exports to the EU gas market has to be recognized, in the medium to longer term supply situation long-haul pipelines will continue to dominate EU gas-imports, and hence EU-reliance on these infrastructures. The EU's gas import needs for the post 2030 period, when the energy system is expected to be less carbon-based, could raise issues around market prospects for investments in supply routes with lifetimes expanding largely beyond that year. The long-term demand projection for imported gas to the EU remains a strong one, especially as a fuel for power generation. With all the uncertainties about renewables, coal and nuclear, gas remains a preferred choice and/or a choice of consequence.

*Changing market conditions?*

Changing risk sharing mechanisms in long-term supply contracts is the next challenge. Traditionally, LTC's were the preferred risk-sharing coordination mechanisms throughout the supply chain, especially when new and major upstream investments were required. However, with the increased role of shorter term market mechanisms in the further liberalizing internal EU-market, the impact of spot-pricing is set to increase. This will have various impacts, not least on the price indexation formulae in the LTC's, but also on the role of oil price indexation clauses. This, in itself, might have a backlash on the attractiveness of EU markets for the external suppliers.

A major driver might be the role of gas in the changing fuel mix for power generation. With the increasing role of intermittent energy sources and the need for balancing and backing-up the electricity system, gas as a flexible deliverable and relatively clean fossil fuel and also with relatively easy and cheap possibilities of expanding gas-fired power generation installations, might create for itself a new "golden era". In order to meet these challenged opportunities, the gas business has to explore and introduce much more short-term oriented

and flexible business arrangements. And that would include pricing formulas that would go beyond the question of oil. Spot-term based pricing may be one answer, allowing also efficient usage of balancing markets, but more electricity oriented pricing may be another one, where also on the day pricing could play a role. A further price reference could be found in the carbon market, where carbon-prices will be a critical factor in determining day-to-day gas (and coal) use in power generation.

These elements could be very relevant for suppliers, where some tend to go for maximizing value where others may choose for volume. The first one could seem to be more appropriate in a flex-fuel context than the latter one. Similar consequences might come up however when the infrastructure services and their pricing and tarification formulas might be considered, including issues around the business incentives for investing in (additional) back-up capacities for power generation. As a final reflection on these developments, suppliers might seek new opportunities by entering further downstream into the EU market, seeking opportunities in increasing their commodity values, for instance, by entering the power generating market. This is already happening in the German market, where the nuclear phase-out policy is bringing new challenges for the gas industry. Therefore, if the EU-market wants to continue to be attractive for external gas suppliers new business models might bring further add-ons to this position.

Bringing gas from abroad to European gas markets therefore needs also some thinking about gas pricing strategies. It is not only a question of continuing oil price indexed long-term contracts or not, or relying more or less on spot market indicators, but it is also a more fundamental question that might come up and that is about the position that gas will take in the market and it's developing contributions to wider fuel mix considerations. Are suppliers able and willing to consider more innovative approaches, are consumers strong enough to require them. The history of the gas business has seen some innovative thinking and experiments, especially in European gas theatres. A rethinking of a new architecture for securing European gas supplies might not hide away from this.

#### *Some reflections on the EU's external gas supply relations*

The EU has consumer power, it is a very large and mature gas market where consumers are increasingly adding their voice, their preferences and their quality demands. Effective energy diplomacy should try to use these powers in an intelligent way, bringing these powers to the forefront and lining up the EU's gas supply businesses. This will become more pertinent in the global setting where the EU will face competitive conditions with suppliers and with other importing consumers. Some of these consumers are organized in a very effective way, using mechanisms that are intelligently bringing consumer power to the front. China and other emerging markets need to be mentioned in this regard.

Developing and focusing the EU's external gas supply policy, the EU-Russia dimension will remain the priority issue. However, relations are loaded, or maybe even saturated, with politics and sometimes irrational dimensions. Part of that comes from the large differences within the EU with regards to gas import dependency from Russia. Most central and eastern EU member states are considering the Russian gas case as part of their supply security problems, whereas present and future gas importing member states on the EU's western borders consider Russian gas as part of the solution. The other part comes from the EU-idea that the prevailing EU liberalized market model needs to be exported to the East as well.

Past and ongoing discussions on gas industry structures, such as the ownership unbundling of infrastructures, gas market designs, and the target model, are not always helpful in building and developing a secure gas supply system between the EU and Russia. A further complication comes from the EU's policy towards the Caspian Basin and its Southern Gas Corridors.

Although it has to be recognized that so far the EU has not been able to develop a coherent external energy supply policy, the EU's track-record on energy diplomacy has not always been helpful either. But, no doubt again, priority focus needs to be given to the EU-Russia dimension with its do's and don'ts of a smart diplomacy. It should help the EU to consider and formulate in a more precise the way the strategic political choices it has to make in this respect. Questions could be raised about the relation between the energy and other dossiers that are part of the EU-Russia agenda, including the wider implications of the more general framework of the EU-Russia Partnership Agreement. The new focus on strengthening the EU-Russia Energy Dialogue could be helpful in this respect, with its more specific formulation of a number of issues to be tackled. The two sides however have to make this dialogue really a dialogue.

Smarter energy diplomacy for EU-MENA relations could on the other hand be done in a broader way than just on gas, or even expanding on the energy question in general. The EU could possibly expand its use of soft power, seeking wider cooperation in the Mediterranean and Gulf Cooperation frameworks. Win-win situations in terms of energy projects, both in gas and in renewable energies such as CSP (Concentrated Solar Power) and understanding the region's basic needs and interests, could add to further stability in the region. The EU already has a number of institutional frameworks that could prove to be effective in this regard, such as the MEDREG cooperation and the proposals to enhance interconnections in gas and in electricity. On the other hand, realism should prevail with projects like Desertec should serve as a warning, bringing major technological and financial risks and even bringing the risk of deterioration of relationships.

#### *The EU external/internal policy balance*

It might be seen as a desirable approach to include energy market liberalization as a policy objective in the context of the EU Neighborhood Policy. It could however also be quite productive to approach some of the EU's bordering states on a more specific case-by-case basis, taking into account the various individual circumstances in their national energy market concepts and structures. An additional featured dilemma of this balance would be the issue of framing contractual relations between the EU gas industry and its external suppliers. Around the ongoing discussions with the suppliers bordering the Caspian Sea, ideas are floating on the formation of gas purchasing consortia or even in a wider sense on that of an EU Gas Supply Agency. The internal market rules for competition might create legal and political obstacles, but signals from some of those suppliers would be a challenge to find smart solutions for win-win mechanisms for future gas supplies. In that context the mandate for the EU Commission to negotiate the conditions for building a Trans Caspian Pipeline might prove to be an opportunity to new suppliers if not a serious challenge to established gas exporters such as Russia.

On the more general internal market perspective, the discussions on EU gas market designs and target models should give due account of the potential impact on external supplier's

perspectives. Suppliers have legitimate interests on issues such as bringing gas not only to EU markets but also through EU markets to final destinations. The rule to introduce entry-exit tariffs for transmission is another one, together with the conditions for the participation non-EU industries in the TSO's.

#### *A final reflection on global gas supplies*

The position of the EU in the developing global gas markets is not always approached in a realistic way. Generally speaking, government officials and politicians within the EU tend to be overly optimistic with respect to external gas supply diversification prospects. Not only do the prospects of the EU's call on global LNG supplies tend to be overstated, the prospects of bringing non-Russian gas supplies via new pipelines to EU markets are also not always realistically assessed. Again, energy diplomacy is not only an art for Brussels and national capitals alike, but it also needs a coherent view on the role of gas in the longer-term EU energy mix, and a clear strategy with a set of internal arrangements that would allow a coherent EU to sing the same songs to the outside world. The prevailing opportunities and the political choices for the EU and its strategic approaches to its external gas suppliers need to include clearly expressed external signals and messages at the right political levels. These signals need to be more innovative in the sense that smart energy diplomacies could cover win-win energy -and other projects-for the Mediterranean basin, could be more open and flexible when discussions are taking place with neighboring countries on their respective energy market structures, and finally could be more direct in its dealings with the EU's major suppliers on the wider balance between supply security and demand security. As to the Union's own role in relation to the roles of national capitals, a smarter use could be made of the precedents coming from the external trade procedures, where the Union is responsible for the regulatory external trade frameworks and national capitals taking the lead for the promotion of using these frameworks. The new Commission Communication on external energy policy <sup>1</sup> might provide new opportunities for enhancing the discussions on these issues.

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<sup>1</sup> Communication from the Commission On security of energy supply and international cooperation ;"The EU Energy Policy": Engaging with Partners beyond Our Borders; COM/2011/0539 final Brussels 7 September 2011

### 3. The challenges for EU infrastructures

#### *Gas infrastructures*

ENTSO-G is the organization that is representing the EU's gas transmission system operators. Membership of ENTSG is mandatory for all TSO's and it still remains to be seen how many of those will be going through the certification procedure under the 3<sup>rd</sup> Package. For ENTSO-G it is quite clear that developing gas-infrastructure is first of all driven by energy policy with its policy objectives and dilemmas regarding sustainability, security and competition. Gas demand is affected largely by these policies, but also by the way in which the gas market is integrating. New supplies will be necessary to meet new demand, leading to new cross-border gas flows and new infrastructures. These will have to manage new imports, as domestic production in the EU is declining. In addition, due to the expanding role for renewable energy sources and the potential of gas as a backup fuel, gas needs to become more and more flexible. This will further influence system designs and operations together with access arrangements.

There are many technological drivers in this process, both on the demand side and demand structure, but also on the way in which gas is transported and the system is operated. On the demand side, new mobility solutions such as natural gas vehicles or LNG for heavy transport shipping are being seen. The new Security of Supply Regulation with its requirement to apply the N-1 rule, the drive to increase cross-border trade and competition, they need to bring innovative designs for managing congestions in the system and the adaptation of balancing rules. With respect to transport itself for instance, excess power from renewable energy could be stored as hydrogen or when CO<sub>2</sub> is transformed into methane, both gases could be put back on the grids. And again, new investments are necessary, with new solutions and new technological devices.

The political ambitions to move this to a fully integrated single gas market in Europe is adding to this infrastructure challenge. As yet, the situation still exists where most member states have a very strong national focus and national objectives. And this impacts the regulatory designs and the regulatory discussions. One element would be the discussion on the number of entry-exit zones. One needs to realize that an increase of the size of an entry/exit zone probably requires also more capacity because it is uncertain to know in advance to what extent this will cause changing gas flows. The larger the zone, the greater the number of constraints in the system and the more balancing instruments will be needed. Increasing the size of the entry/exit zones has advantages, but obviously comes at the price of dealing with these constraints. It could also cause undesirable cross-subsidies and socialization, which are not reflective of the shippers' use of the system. Furthermore, if an entry/exit zone would encompass more than one Member State, it would require substantial cooperation and harmonization amongst TSOs, but also amongst regulators. This is part of the discussion on the Gas Target Model. But before these issues are tackled, it would be necessary to define the kind of network the EU would need. What are the objectives for further developments, also in terms of resilience to external supply shocks? And this means some kind of infrastructure planning.

ENTSG's contribution to the debate about the infrastructure challenge is to develop, under the 3<sup>rd</sup> Package, the 10 Year Network Development Plan. This 10YNDP aims to offer a pan-

European view on the supply-demand and capacity developments and the resulting needs for new investments. It should take due account of the wider gas market dynamics. This year a new 10YNDP was published, containing information about projects with and without a final investment decision (FID), divided into underground storages (UGS), pipelines and LNG-terminals. Figure 5 gives an overview, indicating a total investment of some € 100 billion. For some projects the FID will be negative and will not take place, some are still indicative and for some others information was not always quite clear, therefore costs may even be on the low side. Anyway, the amounts are quite large and hence it's a big challenge for the TSOs. It's also an indication that project sponsors are rather confident that the investments will pay themselves out in the long term, so they must have a positive outlook of the EU gas market.

UGS	FID	Non-FID	Pipes	FID	Non-FID	LNG	FID	Non-FID
Projects	26	22	Projects	62	97	Projects	11	20
10 <sup>6</sup> €	4260	2593	10 <sup>6</sup> €	13711	58556	10 <sup>6</sup> €	3570	6614

**Figure 5. Planned investments in EU gas infrastructures (ENTSO-G 10YNDP)**

The overview is based on inputs from the TSO's themselves. This is only part of the story. The other input comes from the global design base of the network with its interactions between network users, shippers, traders, suppliers and TSOs. This is the story of physical realities, market functioning and market needs, where the need for sustaining supply security and system reliability may make it worthwhile having more infrastructure capacity than needed on the basis of a theoretical model. There are limits of course, but a relevant consideration would be that the costs of infrastructure as part of the end user bill are generally in the order of 4%. So it's better to err on the high side than on the low side. Then there is also the role of storage, where through the modeling of the 10YNDP it was found that in the high demand scenarios more storage is really important. It might even go beyond what is currently planned in FID's.

Figure 6 gives an overview of all the potential bottlenecks under certain scenario's that might need to get further attention and eventually even more investments. This capacity map from the 10YNDP is also based on inputs from producers and suppliers and is translated into a commercial simulation model, simulating different flows under different assumptions. The message would be that there are still a number of potential bottlenecks in the system, for instance in NW Europe and in Central Europe, that need to be addressed. The message underlies further the relevance of a sound investment framework as a very important feature for the entire EU gas market. Scarcity of infrastructure is something that can be very detrimental and may lead to higher bills for end consumers. The regulatory framework for giving the right incentives for investments in infrastructure is therefore a condition sine qua non for the entire EU gas market.



**Figure 6. Infrastructure capacity mapping; ENTSO-G 10YNDP**

Regulatory design that is still being further developed in the EU needs to take full account of the dynamic environment that markets are bringing. The unbundling processes emerging from the 3<sup>rd</sup> Package is getting into a high gear, where all TSOs are looking at their options. From those that have not ownership unbundled or are not choosing to do so, some may go the ISO-route, whereas others may opt for the ITO. It could be questioned whether these choices are sustainable in the long run. Many observers are of the opinion that transmission will become more and more independent of production and supply interests. And if this trend to full independence continues, it may mean less requirements for strict and detailed ex ante regulatory rules. The consolidation that is going on between the TSOs is moving in the direction of further inter-TSO-cooperation and integrating market areas, which are also largely driven by the unbundling process. More TSO-independence should therefore require fewer rules. There is however a tendency that the ex-ante regulatory system is further expanding and becoming a “business-of-its-own”. It would be useful to further reflect on this in the context of allowing markets to work properly and to limit regulatory intervention only when necessary.

Allowing markets to work is also related to level playing fields and preventing market distortions in infrastructure. There is no doubt that tens of billions of Euros have to be invested in gas-infrastructures. And this is a role for markets, with government intervention to be kept to a minimum and only when really needed. The discussion at EU-levels tends to go in the opposite direction, with a strong focus on central planning and even a stronger one on EU-funding. The lessons from the EU’s Economic Recovery Program are apparently not being learned, where projects were publicly funded that were competing with projects funded by the market. The new proposed facility under the Connecting Europe program,



with its amount of some € 9 billion for energy infrastructure, tends to go in the same direction. In addition, the 3<sup>rd</sup> Package gave also the NRAs a wider mandate and a stronger independence, maybe leading to a stronger focus on national interests without too much concern for the wider EU interest of integrating gas markets. This might also inhibit investments decisions for infrastructures, especially when EU funds become available for which the national interests per definition tend to compete with each other. Sub-optimal outcomes may be the result, not always meeting consumer benefits.

### *The role of gas storage*

This is to be further enhanced <sup>2</sup> with the Dutch Bergermeer project from Taqa Energy as an example. Especially taking into account the EU's decreasing domestic gas production versus increasing market needs, external gas supplies will become more important. And they are basically long-haul ones and hence are not able to adjust supply-demand balances at shorter terms. They do not work as a "click-on-the-button". There are thus increasing opportunities for expanding gas storages, also when the role of gas as a flexible fuel for meeting the intermittency challenge in power generation is taken into account. Figure 7 gives an indication of developments in storage projects in the NW European region. They all have different perspectives and planning horizons. The Bergermeer one, once in operation, will become the biggest open access gas storage project in Europe. It will be almost doubling the existing storage capacity in the Netherlands, and there may be another need for a similar project by 2020 based on some market assumptions.

The Bergermeer however has a wider functioning potential than just the Dutch market. It may also play a role for the UK market, where up to now only some 5% of the demand is covered by storage. That role may become even more important when gas-flows through Nord Stream will become available for the NW-European market, especially since Taqa entered into a partnership with Gazprom. Gazprom will supply all the cushion gas that is needed in return for a share of the working volume, so they are seeing the Bergermeer as one of the end points to Nord Stream. But next to Nord Stream there is more gas coming to the area, gas from north to south, from Norway to Spain, from east to west through Nordstream and other pipelines towards the UK. Gas is also coming through the LNG-terminals, including the new Gate terminal at Rotterdam. And this is all adding to market activity, where gas traded on the Dutch TTF is further increasing as well.

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<sup>2</sup> See also: "Seasonal Flexibility in the Northwest European Gas Market. An Outlook for 2015 and 2020", Energy Paper. Clingendael International Energy Programme (April 2011),

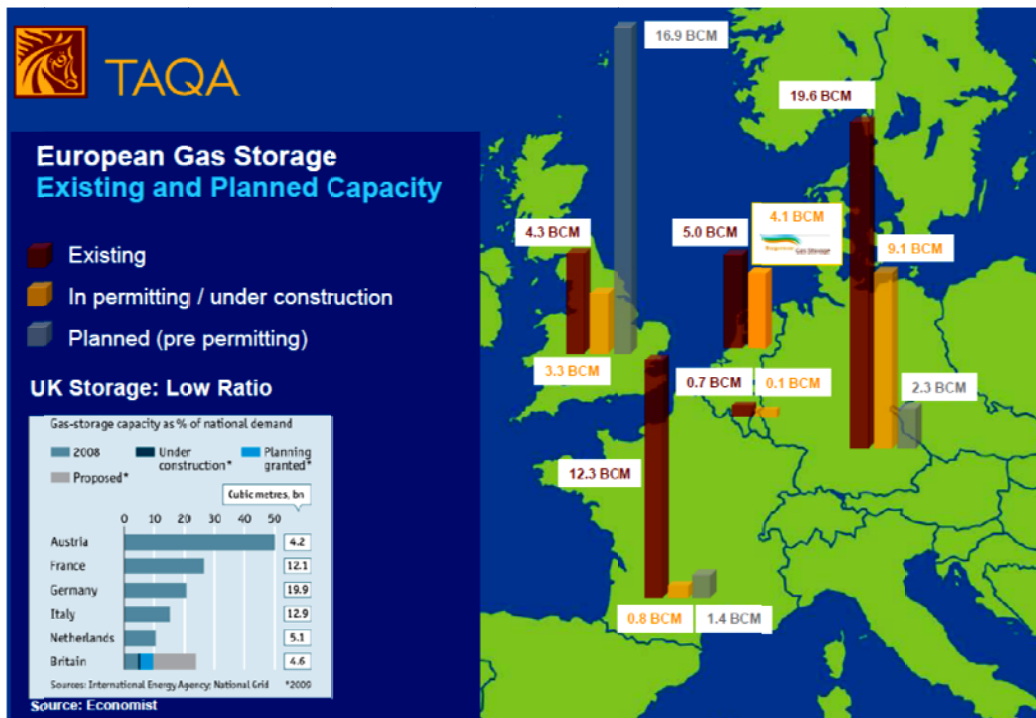


Figure 7. Gas Storages in NW-Europe

It is quite clear that Bergermeer is a major investment project, not only covering an initial amount of some € 800 million, but as a commitment is given of a ten year capacity period, total investment for building and operating the project comes to some € 3 billion. And this brings us to the regulatory environment and the regulatory risks. One important feature is the uncertainty about the transmission tariffs for bringing the gas to and from Bergermeer. This would also require expanding pipeline capacity by GTS, the Dutch TSO. Discussions are still ongoing, both with GTS and the NMa (the Dutch regulator), but final conclusions are still pending. Uncertainty on the access to the storage seems to be settled as the Dutch government has concluded that negotiated TPA is the rule, meaning no ex ante regulatory intervention.

Uncertainty is still an issue on the permitting front, where thirteen authorities are involved, including several municipalities. For one of them, near the facility, NIMBY is the leading issue, and final appeal procedures are still not settled. There is however a general belief that the permitting issue will be settled in a positive outcome for the project. Once a further safety investigation mandated by the Dutch Council of State has been completed, commercial operation could start by 2014. Bergermeer therefore, as a major European storage project in a country with a lot of interests in the gas business, is also dependent on difficult regulatory procedures that per definition are adding to uncertainties and are requiring quite some patience of its stakeholders.

#### *Specific considerations*

A number of more specific considerations are to be added to the more general reflections on the infrastructure challenge. Issues such as financing, market designs and capacity bookings and markets, regulatory risks, the role of national regulators and their relation with the new ACER and finally, regulatory designs and market dynamics.

### *Financing new infrastructure*

The issue is always where to find the money and what are the right conditions. When for instance a TSO needs to expand its capacity due to the regulatory requirement, such as coming from the 10YNDP, it may have no money to fund this, or no shareholder to raise that money. As the 3<sup>rd</sup> package seems to be indicating, tendering by third parties may be another option, even in combination with long term leases to the TSO concerned. A further option may be coming from new capital from pension funds and other institutional capital funds that are seeking relatively risk-free and stable outlets for their capital. But, the situation may be very different for the various TSO's, depending also on their organizational set-ups and their degrees of ownership unbundling structures. Public funding is also mentioned some times, but it would bring additional political interference and processes. And, although many MSs may have their doubts, when this is done at EU-level on the basis of an EU facility, every capital will lobby for a share, and this might then lead to sub-optimal results in the end.

Financing new investments will also be influenced by the structure of the TSO-industry, with questions around ownership and the implementation of the 3<sup>rd</sup> package rules. As ISOs will not happen in gas and the ITO could be only a transitional option, at the end of the day all TSOs may be fully independent and ownership unbundled. This could be a lengthy process, but developments could be overtaken by what is happening on the market side. As there will be more and more cross-border cooperation needed, a further consolidation of TSOs and market areas will follow. These developments will really force NRAs and national governments to deal with regulatory frameworks, necessary to facilitate that. If however TSO-owners would still choose today for an ITO, they will probably do so as they would expect not be able to raise enough money from selling their network assets. Going the ITO-route with its detailed regulatory set-ups would mean no control and no rights over the assets as in the case of the integrated company. Capital will be tied up with relatively modest returns compared to commercial business. Shareholders will not be happy with that, leading to unstable models bringing full ownership unbundling rather sooner than later.

### *Market designs and capacity markets.*

Tariffs and their cost bases is one thing, other elements may be as relevant when new investments will have to be made. A clear distinction has to be made between the commodity part of the business and the capacity part, i.e. the capacity for transmission. There is quite some progress towards more integrated commodities markets, with all sorts of impacts on the gas trade as well, but not so much on capacity markets. There may be evolving a need for some platform or some process through which bidding and booking for capacity in a coordinated way could be arranged for. It would be useful to make a distinction between existing and new capacity. In particular, the forthcoming rules on capacity allocation management that require 10% of capacity to be kept free for short-term allocation at later points in time are to be mentioned. This 10% can be very useful for short-term market considerations and be very relevant for shippers. In some circumstances it could even be sold several times over and be quite profitable. Especially when there is something like a limitation of re-nomination rights, some of that short term capacity could be very necessary. An important feature however would be the determination of the reserve price. And as yet, this feature is not properly addressed and is lacking in the ongoing consultation processes on the codes and guidelines. It is also very much interlinked with the other features in capacity allocation, such as the role of auctioning. It may be essential for this piece of the puzzle to be somehow slotted in.

TSOs are anyway under obligation to develop their network under economic conditions. If 90% of the new capacity is contracted for the long term and 10% is not, it may make the decision a little more difficult. For most TSOs the need that a significant portion of the capacity is covered by long term contracts probably will do. The 10% “free capacity” could, as indicated, be profitable as well but it brings anyway some additional risk. A side effect may be that shippers will count on the availability of always 10% free capacity, and hence refrain from booking this capacity in advance. On the 90% share, open seasons for assessing shipper interests in new capacity will probably be the way to go. Especially when new investments are needed in a cross-border context, some form of coordinated procedures would then be very relevant. This could be done via coordinated open-seasons, but however they are as yet usually taking place on a case-by-case basis, although these cross-border investments would be quite relevant for combining intra-EU gas flows. As an example, there is an EU priority to have a north-south corridor in Eastern Europe for security of supply purposes. But the open season to connect Slovakia and Hungary is taking place on one day, and the one between the Czech Republic and Poland on another day. And even the ones covering other flows such as between Denmark/Poland, Sweden and Norway, are not part of these procedures. So there is a need for some platform where all these procedures are put together. It may be complex to arrive at this, especially when also auctioning is included. Some of the UK lessons on the role of auctioning may be relevant, in order to preserve the paradigm of a market-driven system instead of falling back to an old style market involving transit.

It may be forward looking but the process of developing the new EU network codes would put ENTSO-G in a strong position to make relevant proposals for these issues, and it would then be hard for the European Commission not to back them. It would also give a clear format for deciding on new transmission lines, further enhancing the options for long term capacity rights. It could create a regular process in canvassing the needs for cross-border capacities. The more such a process would be expanded on a regional basis, the more a real capacity market might be evolving, even a long term capacity market. It could facilitate the challenge to provide the relevant forward-looking investment signals and would be able to underpin the long term commitments that will be necessary to add to long term supply security arrangements.

#### *Risks associated with energy policy and energy regulation*

Whereas so far issues were mentioned that are more or less coming from within the TSO-industry, even more relevant features are coming from the global environment they are working in. Surveys and other regular overviews of business perspectives about the risk factors of the energy industry mention as the number one risk issue the regulatory risk. Examples are numerous, but it is the new world that the energy industry is living in, whether regulated or not. In the EU the 3<sup>rd</sup> package and its implementation, together with REMIT, and forthcoming more general regulations, such as EMIR and MIFID, have major impacts on the energy industry. This is also putting major strains on the NRA’s and their respective governments, and they will have to find the right balance between the market and the regulation. In this balance regulators should not only try to limit the cost of compliance and of doing business but aim for a transparent and sound regulatory design that is serving the overall public interest. In other words: go for smart regulation.

In this whole context, the role of regulatory authorities cannot be underestimated. The NRA-TSO interaction in many countries is still under development, as most of the NRA's have a relatively young lifespan. This does not only apply to the NRA's as they are, but also in relation to the new Agency, ACER, that has a particular mandate to promote and facilitate inter-NRA cooperation, especially when there are cross-border impacts. One has to be aware however that not only ACER has no role in "steering" the NRAs, also ministries and other political institutions have only limited possibilities for intervention in NRA-decision making. Most NRAs have in many cases quite some large mandates and a strong independency in applying these. Although there are always procedures for appeal to specific courts, but most courts tend to focus on the procedural environment of the NRA-decisions and less on the substance matters. The same would apply for the interactions between NRAs and their national governments. In some MSs, the choice was made to attach the energy regulator to other regulatory bodies, or even to merge them with competition authorities<sup>3</sup>. This last point could also be part of the philosophy to use "markets were possible and governments and regulation only when necessary". A regulatory body that is embodied into a competition authority would have the incentive to act accordingly.

A key element for instance in the discussion on investments in new infrastructures is the allowed rate of return and the resulting translation into transmission tariffs and their base in tariff structures. NRAs are the determining institutions, based on the national rules coming from the implementation of the 3<sup>rd</sup> package. And these national rules are related to the more general financial and fiscal regulations with their impacts as well on the financial conditions for new infrastructures. But when cross-border issues are involved, some harmonization of structures and tariff-settings may be very relevant for the investment decisions, and up to now it is unclear whether ACER will be able to play a role in this regard. The NRA-ACER interaction is still developing and finding a way out how to comply with or even manage the national mandates of the NRAs. This is very different from the US situation where interstate pipelines are regulated by FERC, the Federal Energy Regulatory Commission. But the EU is not the US and one should accept that the ACER-NRA process is just beginning. It will be a very critical one as most, if not all, of the major investments in new infrastructure in the gas market, will have a cross-border or a cross-national interest. A mechanism is needed for facilitating inter NRA-cooperation on bilateral or even tri- or multilateral levels and solving outstanding issues on which NRAs would fail to agree on. That is a primary role for ACER, as it would secure wider regional market interests and even an all-EU one. It's a first step for ACER to deliver. And it can be done within the 3<sup>rd</sup> package, not needing a 4<sup>th</sup> one. The Commission proposal for a regulation on guidelines for trans-European energy infrastructure gives further guidance and possibilities for ACER to act.

On another philosophical note regarding regulatory design and market dynamics, the balance between regulatory stability and market dynamics could be mentioned. This is an ongoing quest in many areas. Are NRAs able to react to a dynamic market development as it is the environment in which the regulated entity is working in, usually asking for a quick response? But when the NRA is tied to a too much specified regulatory mandate, creative solutions in giving quick responses are usually not possible. This would call for a very general mandate with some global objectives, including the ones on sustainability and supply security. It would allow the NRA to find a balance between its traditional task to enhance

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<sup>3</sup> Reference could be made to the situations in the Netherlands and in Denmark.

competitiveness and efficiency in line with the evolving market dynamics and policy agendas. It would also help NRAs to focus more on a process of effective stakeholder involvement and participation and less on the more detailed outcome. The NRAs have the task to organize the process very well and allow market parties to participate in that process. Open seasons or platforms for capacity allocations might be perfect examples in order to do that. NRAs would be able to focus more on managing and securing a process that would bring all the relevant interests on the table in order to secure a fair outcome.

A special note needs to be given in this context on the EU's external suppliers. Realizing that they need to invest large amounts of money to develop production and supply lines that EU consumers would like to be served with, suppliers such as Gazprom and Qatar Petroleum are complaining about understanding the EU market and its governance by a variety of countries and authorities that may even be working in different directions. It's not only the supplier company as such, but more important their share holders. As they are large investors, such as for instance the Abu Dhabi sovereign wealth fund that owns Taqa, the large storage company, they are quite able to redirect their investments to different countries or continents if they perceive the risks as too high. It's not always easy to explain to them the European story. EU institutions, industry and regulators should raise their efforts to make this story a successful one.

#### *Finally on the challenges in infrastructure*

A number of bottle-necks when it comes to new investments in infrastructure, securing longer term supply security in gas still exist. Financing is a key to the solution and the best condition for that is by many regarded as the one of a well functioning market that would provide the best guarantee for security of supply. A well functioning market has more dimensions than just security of supply as it is also essential for the promotion of competition and for the sustainability objectives. For the market there are many good reasons to invest into the infrastructure that is needed to get facilitate this market. There are however always situations where the market will not be able or willing to invest. The case of Southeast Europe may be an example, partly due to the very different development phases in relation to the Northwest European example. In these cases some public money could actually help to break through and advance the region further towards the development of the market. This would make the region getting better connected to the other regions in the EU, thereby achieving a better functioning market and also getting the necessary security of supply. But it should continue to be underlined that a sound investment climate, be it for private or for public money is perhaps the most single important condition. And this brings us more in particular to the broader issue of the regulatory challenge in a more generic way.

## 4. The regulatory challenge

The broader issue of the regulatory framework and its designs, as laid out in a legal set of rules and regulations and its further implementing framework in secondary and tertiary pieces and documents, could be approached in a rather general way, covering the whole value chain as it is effective within the EU, but also from the perspective of the global view about the market concept the EU must be developing to. A concept as a “point-on-the-horizon”, guiding the whole implementing process of the 3<sup>rd</sup> package. In EU gas market jargon, a Gas Target Model, the GTM. Before moving into that issue, the broader aspects of regulating gas markets is addressed, especially in relation to gas supply security, the main subject of this project.

### *Regulating Gas Infrastructures*

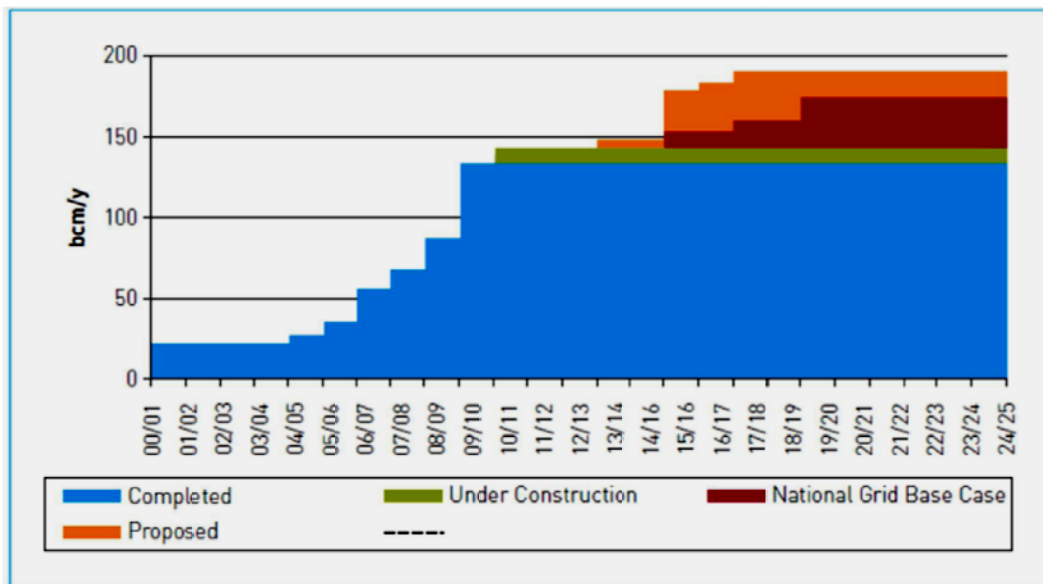
Broadly speaking, the role of regulators is not the central one when referring to security of supply. Other things, such as energy policy, the choice for markets in liberalization, international relations, environmental policy, competition policy, are much more important. One could even argue that the EU Sector Inquiry has had a bigger impact on gas markets than the regulatory process. But it goes without saying that the 3<sup>rd</sup> package does create a process that is bringing a new regulatory architecture. We now have ENTSO-G, which is not a trade association but a statutory body, we have ACER, another new statutory body and the two of them are instrumental for the network codes that will be put into place. That will take time, but it will eventually become a new regulatory architecture which will define to a large extent how cross border markets in the EU will work. However, one has to make a distinction between regulatory policy, which is not made by regulators but by governments, and its implementation which is largely the job for regulators. The other distinction is to be made between regulation of infrastructure, such as setting tariffs and access rules and investment incentives, and setting rules for the market. On these issues, the infrastructure part of what regulators do is more important for EU gas security of supply.

Taking the role regulators have in infrastructure, the 3<sup>rd</sup> package is clear in saying that the NRAs decide on the tariffs that pipelines can charge, and setting methodologies and tariffs also means deciding around the investment decisions by the pipelines. A rather extreme model could be that NRAs require the pipelines to sell capacity on a short term basis only, and if TSOs want to build new capacity, they will approach the NRAs and they will agree to it or not on the basis of regulatory guarantees. That seems to involve a large degree of central planning by the NRA. An alternative approach is the one practiced in Britain and is apparently also the preferred route for ENTSO-G. This approach is to rely on a mix of market signals and central decisions, using for instance “open seasons”. In the UK that is dressed up as an auction, with investor incentives. A market based approach that gives incentives to build is probably one of the single biggest things that regulators can do. An important point to make is that the TSO might want to build more than what it gets on the basis of market signals. The UK rule is that if the TSO has a project to build new entry capacity, they need to get market signals which cover half of the cost of doing that. The logic is not only to build for today’s users, but also for the ones that will come along in the future. There is another logic that competition requires to have more infrastructure than central planning does, allowing competing suppliers from other sources, hence also adding to security of supply. The

balance will come between the interests of the consumer who does not want to fund enormous amounts of infrastructure and the interests of competition and security of supply.

The more centrally organized planning approach is the one where it is accepted to build anyway on the basis of overcapacity at a socialized cost allowing suppliers to come in from everywhere. These two approaches could be highlighted by the experiences in the UK and in Spain when building infrastructures and terminals for LNG. In Spain, the NRA and its government accepted to build terminals with regulated access and tariffs, with costs that were socialized. It brought additional costs for consumers, but also benefits for the country. As a result they have today a market of about 35 bcm, with about 20 bcm of import pipe capacity, and some 60 bcm of LNG import capacity. So this is clearly good for security of supply and the potential to become an LNG hub with all sorts of market advantages.

The UK approach is illustrated by figure 8, showing UK gas import deliverability. The UK with its around 100 bcm gas market was fully self-sufficient in 2002-2003, including some 20 bcm import capacity. But it was also facing the potential for rapid decline in domestic production. The choice was to go for TPA exemptions under the Gas Directive and the case to prove that this was good for markets and competition and for supply security was broadly and widely accepted. Of course it had to be added that the UK was a liquid market and a hub, attractive for gas suppliers. The result was an expansion in import capacity, with new LNG terminals and new interconnectors, all being exempted and done at the risk of the investors. That was not only fair to the consumer but it would force investors to make good decisions about what infrastructure to build. In 2011 there is now 130 bcm in import capacity, with domestic production still running at some 50 bcm.



**Figure 8 UK Gas Import Capacity (National Grid September 2011)**

So the UK and Spain seem to be well positioned in terms of gas-receiving infrastructure and that is good for security of supply. Regulators and policies do have an important role in ensuring that security of supply is going forwards and one way or another, they should give incentives to ensure that “plenty” of infrastructures get built. Although it’s a balance, it’s better to be on the high side than on the low one. However, it comes at a cost, which is



either fully socialized as in Spain, or is based on clear market orientation as in the UK. Both approaches seem to be consistent with liberalization and the vision behind the EU Gas Directive. The two onshore transmission systems are close to consumers and are rather meshed, regulated monopolies. On the upstream side infrastructure is more contestable, especially in the UK, where LNG terminals, interconnectors and storage sites are all competing with each other in bringing gas and flexibility. Since they compete they don't need to be regulated and are part of the competitive landscape. This can be done as the market is reasonably mature and different supply routes and options are possible. This is not the case in many continental EU markets, where markets are much more bound by single supply options and geographical conditions are (as yet) prohibiting efficient and effective alternative supply routings.

### *Regulating the market?*

Regulatory policy on markets should be one of modesty, as markets need to be competitive and competition to be the main discipline. But it cannot be denied that regulators have to act sometimes in a direct way, especially when it comes to setting prices and controlling them in order to protect end consumers. Most experts would disagree with such approaches, but it cannot be denied that governments sometimes require this for political purposes, as household consumers are always voters. It is obvious that when prices are set too low, security of supply would be threatened in general. Two other challenges exist for regulators. One is around the sort of detail of market rules, such as the arrangements defining cross border trade in the internal market. The other one is around emergency situations, when there is a real imminent gas shortage. It is not always quite clear what triggers emergency situations. For instance if there is a very cold winter or when there is default supplier, some countries have the rule that in these cases the TSO needs to step in, on the basis of a number of specific conditions, such as on prices or on duration. Another possibility would exist when there would be a real national emergency. Then strategic stock could be set in, but here again, there is the risk that regulators (or their governments) are tempted to use it for other things like keeping prices down<sup>4</sup>. If they are going to do that, it would mean that the private incentive to invest, to provide peak gas is weakened. Such a measure should only be considered as a final resort. In the case of an emergency that has cross-border implications, there is now the EU Regulation for Supply Security. It is not only putting the obligation on MSs to have a number of emergency measures in place, but also requires EU-wide coordination of actions, where also ACER has to play its role.

### *The Gas Target Model*

The issue of defining a Gas Target Model (GTM) received quite a lot of attention of all stakeholders and was sometimes heavily debated in the course of 2011. Basis for the discussion was the request formulated at the meeting of the 18<sup>th</sup> Madrid Forum (December 2010), where the Commission and the regulators were invited 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 market target model”.*

The desired target model should have as its purpose to provide a unifying vision on the future layout of the European gas market architecture. That vision should assist all

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<sup>4</sup> The IEA set a precedent in 2011 by deciding on some emergency stock draw-down for influencing oil prices in the market.

stakeholders in quickly and efficiently implementing the 3rd energy market package on the internal gas market in a consistent way. It is also supposed to prevent inconsistencies in developing the Framework Guidelines for the EU Network Codes. This brought a number of ideas that were put on the table by think-tanks and consultants, using acronyms such as ASCOS, EURAM or MECOS. Most of these contributions were already published<sup>5</sup> during the workshop-discussions at CIEP. A CIEP-paper was at its final stages and presented at the workshop, before its publication in September 2011<sup>6</sup>.

In this report the focus on the GTM-discussion will be put on the process of formulating a Gas Target Model and on the further way forward. As to the subject matter and the contents, the CIEP-model will be briefly mentioned together with some of the most debated issues, i.e. the role of wholesale markets and long-term contracts, the options for market merging and interconnection, the capacity allocation and congestion management approaches, the meaning of criteria such as price alignment and market liquidity, the relation with external suppliers and, finally, the broader context of Gas Supply Security, the main theme of this project.

#### *The GTM-process.*

The whole process had and still has the potential of being one of the most ambitious moves in setting the regulatory framework on the EU Gas Market, with a large impact on the industry. A number of alternative models and ideas have been floating around, creating many misunderstandings that are often due to a lack of discussion. Using different words for the same thing, arguing around with lacks of knowing and or fully understanding the whole market and its value chains, exploring implementations in certain and specific ways with different interpretations. Market coupling as one issue for instance, has to be assessed very carefully, in line with short term congestion, maybe on the basis of specific pilots. Merging entry-exit zones or trading zones clearly have their pros and cons and may need further cost benefit analysis. The German experience in merging their market zones might give some answers, together with the process in Ireland where merging the markets of Northern Ireland and Ireland is on the agenda. Questions will have to be addressed also about the size of the entry/exit zones and their relations with hubs and linking. All these and other issues would require further thinking and discussion.

Many workshops were organized, although not always in a way to bring “the right people” together, or giving them sufficient time (for a week or so) to sort out the relevant issues and concepts. Most of the workshops were organized in a way that presentations were given, where many stakeholders were sitting together, sorting some things out, however without coming to common conclusions. Sometimes these workshops even added more to the confusion than resolving them. Language plays a role, where most participants are forced to use English without being their mother tongue, with also different experiences in these processes between representatives from old and new member states.

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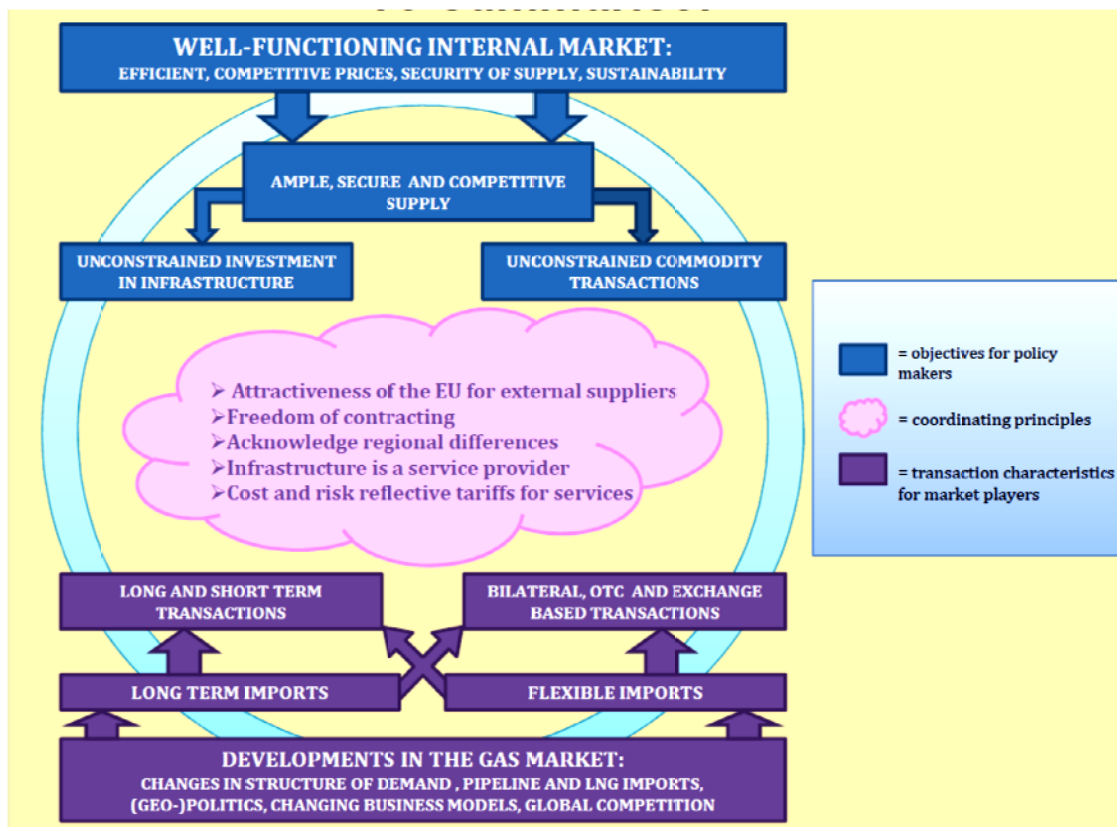
<sup>5</sup> A Vision for the EU Gas Target Model: The MECOS-model; Jean-Michel Glachant; [www.florence-school.eu/portal/page/portal/FSR\\_HOME/ENERGY/Publications/Working\\_Papers/2011/RSCAS\\_2011\\_38.rev.pdf](http://www.florence-school.eu/portal/page/portal/FSR_HOME/ENERGY/Publications/Working_Papers/2011/RSCAS_2011_38.rev.pdf) ; An American model for the EU Gas Market? Sergio Ascari; [www.florence-school.eu/portal/page/portal/FSR\\_HOME/ENERGY/Publications/Working\\_Papers/2011/RSCAS\\_2011\\_39.pdf](http://www.florence-school.eu/portal/page/portal/FSR_HOME/ENERGY/Publications/Working_Papers/2011/RSCAS_2011_39.pdf)

<sup>6</sup> It was published also in September, CIEP Vision on the Gas Target Model; [www.clingendael.nl/publications/2011/20110819\\_ciep\\_energypaper\\_gas\\_target\\_model.pdf](http://www.clingendael.nl/publications/2011/20110819_ciep_energypaper_gas_target_model.pdf)

The process also did run the risk that too much attention is paid to the idea that markets could be designed by rules and regulations, by laws, by regulators and or governments. That clearly is a mistake as markets are designed by themselves, by market parties, suppliers and producers, consumers and traders. Of course governments and regulators have to set boundary conditions and intervene in markets when market outcomes are not acceptable. Precedents and models coming from the electricity sector were maybe getting too much attention, focus and relevance for gas, with the issue of market coupling being a good example. Gas molecules are gas molecules, without a passport and when they come from Russia, entering the EU market in Germany, they are losing their origin in a physical way. One also has to understand and accept that the EU-market has many different regional and national characteristics, where 27 different problems cannot be solved by a single solution. Ideology should therefore not prevail, but realism and pragmatism, based on the common objectives and global legal settings. Perfect markets do not exist, not for electricity and not for gas either. Why not therefore be a little more realistic and interested in how to make it work, and if this is done in a dynamic sense, using benchmarking and best practice approaches. That would also allow regional markets to develop in specific ways in line with their specific characteristics and circumstances. Benchmarking and best practices could then give further ground for bridging regional differences on the basis of some further harmonization of rules and procedures, without running the risks of too many exemptions for specific national circumstances.

#### *The CIEP-model*

The ASCOS model (Ample, Secure, and Competitive Supplies) as developed by CIEP is illustrated by figure 9. It underlines the idea that the GTM should depart from the expected future developments in the gas market for the decades to come. Gas will be used, increasingly in power generation, but it has to compete with other fuels. Markets should offer a fair level playing field for this. On the supply side, as indicated in earlier sections, no matter what scenario is used, EU imports will have to increase and hence the EU should remain an attractive outlet for gas suppliers. This would be the more relevant as reductions in prices on the wholesale markets are primarily coming through competition in upstream markets and less on the downstream side. And finally, developments on both the demand and supply sides will lead to more cross border flows and thus more cross border investments.



**Figure 9 The ASCOS Model (CIEP)**

Markets and regulation are the two sides of the same coin. Regulations are based on policy goals, which for energy are laid down in the TFEU, the Treaty on the Functioning of the EU. They are also the basis for the 3<sup>rd</sup> package, which gives some further specifications, such as the well functioning of wholesale market in gas. This goal has to be added to the more important overlay to ensure ample supplies from outside the EU. In other words, the main goal should be the emergence of a well functioning and transparent wholesale market with a high level of security of supply. Interestingly enough, the 3<sup>rd</sup> package gives no definition or further “critical success factors” for the functioning of wholesale markets. So, there is a need for interpretation, and hence discussion.

The ASCOS-model departs therefore from the view that, both regarding the commodity side and transport side, market parties should be able to engage in commercial transaction meeting their needs. And on this basis, customized long term contracts will need to play a key role. It is important to note that no upstream project has ever been developed without a large part being committed under long term customized contracts. They would provide the best guarantee that gas supplies will come to the EU. Infrastructure is the other side of the coin, with customized long term capacity contracts. A key feature of markets is uncertainty. Market parties are in the best position to deal with this uncertainty and they will seek to develop mechanisms to manage these. Short term trade, be it on a spot basis or with additional timeframes are then coming up. It would be very imprudent for NRAs to formulate strict views or criteria for the relation between the various market structures. Markets cannot be designed by rules and regulations, but when market outcomes are not accepted in a broader or political sense, governments or NRAs may step in. Another point to take into account is the fact that within the EU and its markets, regional differences will have

to be accepted, reflecting physical realities and structural conditions, including those in specific demand and supply structures. Regional markets therefore need to be seen as relevant and specific outcomes of market forces, and not always as “just” an intermediate stepping stone in the process towards a single EU market.

A smart balance is therefore needed between ex post and ex ante intervention in markets. Ex ante intervention is the rule for infrastructure and regulation. Ex post intervention is the rule for the market, and hence competition, competition policy and competition law. Being smart on the balance also means being smart on the “in-betweens”. Examples on this last front are for instance coming from storage infrastructures and from LNG-terminals. Depending very much on the (regional) relevant market they are servicing, regulated or negotiated access has to be assessed. New investments in transmission are another example, when setting financial access conditions and assessing cost reflection and risk-reward balancing. Cross subsidization for instance between short- and long-haul transports should be limited and socialization be applied only in cases of a well defined public need. This may then lead to customized contracts where tariff differentiation under non-discriminatory conditions is allowed.

#### *Wholesale markets and their long term and short term characteristics*

Wholesale markets are important components of any GTM-discussion. It goes without saying and it seems to be generally accepted that long term contracts made Europe more attractive for gas and are still extremely important for the security of demand and of supply and hence for the further development of the European gas market. Any GTM should therefore not give the impression to frustrate the existence of long-term contracts. Besides that, it is not for regulators to have an opinion on the kind of contracts market parties should sign and probably they have no competences to do that. Long term commodity contracts however do require some form of long term capacity contracts. Attention needs to be given to the role of the short term trading market. Short term trading, in the meaning of one to two years ahead, is a complementary feature to the longer term relations. Gas that is brought to the EU by a large number of long term contracts have usually price formulae in oil, but with various product specifications and time horizons. Therefore different contracts will have a different price at a different point in time at a different delivery point. What a traded market does is to find the optimum solution, a portfolio of optimization on a European scale, covering the use of long term contracts, of production wells, storages, regasification at terminals etc. as efficiently as possible in the interest of the end users. Discussion of traded markets in the GTM context is therefore by no means a move away from long term contracts.

These types of traded markets have developed in some EU countries at national or at regional levels. But other national markets that are using gas are still lacking this efficiency option, so it would be worthwhile to consider how and where to develop a complementary market. Slovenia could be seen as an example, but it would be unlikely to develop as a traded market with its small size, too little players and too small volumes. The question then is how to bring them into a price area with another neighboring market, maybe Austria or Italy, to foster the emergence of such a traded market. Could this be done by simply connecting Slovenia via efficient capacity allocation mechanisms to Austria and Italy, using the price signals from the gas hub Baumgarten? This may be unlikely, as a retail competitor on the Slovenian market can only compete on the basis of fixed price offers, for instance for

a period of 12 months. In order to have a basis for its price quotation, the retail supplier has to look at the traded market and its price forward curve. And this requires a liquid forward market. The spot market cannot deliver such a quote as it is per definition much more volatile, sometimes even exaggerating price signals. Developing liquid forward markets is however more complicated than creating liquid spot markets. It needs many players to be active and much volume with many bids and offers.

If it works, the Slovenian retailer could take the price reference from Austria and now needs to ship the gas into Slovenia, covering its contract period starting for instance some months later. Under the current Baumgarten guidelines this would be the next frustration, as he has to wait for the next auction period for getting his capacity rights. This will bring him long on gas on Baumgarten and short on gas in Slovenia and in between no capacity. Such a situation does not foster retail competition. And this example could be one reason to get every end-user into a zone that is hosting a functioning forward market. This feature is a key component of the MECOS-model. The size of the zone is always a question but looking at physical realities, existing capacity between the Slovak Republic, Austria and the Czech Republic would do without any further investment to integrate Slovenia into that zone. It would also be easy to merge Spain and Portugal as well. It's a question of political will. In much the same vein, it could be mentioned that for instance in Munich a household or an end user can choose from some 80 or so fixed price offers with tenure of a year. All of this is based on forward market procurement. And although liquidity can always be better, the German NCG market is a prime example of the right direction when it comes to forward markets. Austria, however, has no liquid forward markets but a lot of voices from retail companies are saying that Austria should connect to NCG in order to have a forward market. It is a question for policy makers to take action. This merging approach, as suggested in the MECOS-Model, is different from market coupling, as it is no alternative. Market coupling can only couple spot markets as an effective means to manage congestion.

However, more is to be said about traded markets. Economic theory concludes that traded markets will depend on sufficient suppliers, perfect competitions means abundant supply. Connecting for instance Slovenia with Austria, Bulgaria, and even maybe Hungary into a well functioning market does not bring per definition sufficient suppliers. All these markets are basically supplied one way or the other, by Gazprom. Extending market areas could indeed bring more liquidity, but a shortage, such as happened in the 2006 and 2009 Ukrainian crises, could lead to perverse price effects that would be detrimental for consumers. Therefore, one has to be very careful in designing of and focusing on traded markets. Another point of attention is that gas is a commodity, a commodity with specific quality versus location characteristics. There are many traded markets for goods in the world, i.e. metals, grain, apple juice, gas, etc. There is not a single market in the world with a liquid forward market. Forward markets, including the NBP market, are not liquid. There are many markets in these commodities and typically forward markets are more or less liquid for a period of maybe 2-3 months ahead and then it stops. The same would apply for other energy commodities, such as oil, coal and electricity. Market liquidity has a relatively short term focus, per definition. Supply functions may differ, but no energy commodity comes from a single source. Traders and market parties always have to make their own assessments about their risk-reward balance, depending on the various sources they can use or contract with. Liquidity as an objective for getting effective and efficient competition is therefore the wrong focus, but liquidity could be a useful indicator to assess competition.

### *Merging and/or connecting zones or markets*

This issue is considered to be a key element in the GTM-discussion. Here again, words of warning are particularly voiced in relation to certain ex ante criteria to be fulfilled as a lead on to a prescriptive policy approach. Ex ante criteria such as a defined number of supply sources or the size of the market<sup>7</sup> could be useful as a starting point for reflection, but could also undermine market dynamics and contractual freedom. If such criteria are not met in a certain market zone, then connecting or merging with neighboring zones could become recommendable. If this is to be considered, it would be appropriate to make a sound analysis of the costs and the benefits. And this comes also to the issue on the optimal sizing of entry-exit zones. Market integration and trading crossing national borders will happen within and between entry/exit zones. The general idea is that the European market would be made up of several entry/exit zones. Some would even expect a single zone for the whole of the EU, but that is Utopian.

If the idea is to merge entry/exit zones into a single entry/exit structure, allowing gas to move anywhere freely within that merged zone without having to pay any more for transmission and to just nominate to exit it anywhere in that area, TSO- and national borders will be crossed without charges. In principle there's nothing wrong with that but it removes a source of funding. Transits crossing borders are very important in gas; in that sense it is not like electricity. Taking Belgium as an example, transits are probably two or three times as much as national consumption, requiring a lot of capacity. If these transits are not charged, then Belgian consumers are paying to fund the transit of gas that is consumed outside Belgium. Moving in that direction would need some kind of inter-TSO compensation mechanisms.

Such schemes may become relevant in future, but would bring quite some complicated regulatory challenges. TSOs would then be building capacity for the benefit of others and not charging those others. That does not seem to be a problem in principle, as an obvious approach to the European network would be to have some kind of TSO coordination at EU-level in order to decide what and where to build for the European market. In practice it could be very difficult. Coordination is difficult. ENTSO-G and ACER, the bodies that could be instrumental for such a mechanism, are still too young and have to prove their abilities. Other options are thinkable including devices where individual TSOs will decide and invest for transits and sell capacity rights to their neighboring TSOs who then could charge their markets. That would also require that TSOs need to take a view on the amount of capacity to be build in their neighboring market. It would be a recipe for confusion, potentially undermining security of supply. Connecting or merging market areas therefore needs very careful assessments.

Another important feature of this discussion is the role of hubs. Lessons from the US market are learning that there is room in the EU market for only a very limited number of really liquid hubs. Politicians, and sometimes regulators, seem to think that every national market would create the opportunity to have a hub. If that would be the way to go, only the interests of external suppliers are fostered, and not the interest of European consumers. Of

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<sup>7</sup> For instance, the MECOS-model (Glachant) mentions a minimal size of having 3 distinct supply sources and a market size of at least 20bcm/a for creating a well functioning wholesale market.

course there may be several hubs. In the US there are plenty hubs, but most market liquidity is concentrated in a few hubs and the others are secondary, linked to the major hubs. They are bringing price differentials that are dependent on market situations, and sometimes also price alignments. So, there is no role for many liquid hubs in Europe, but one might expect developments that cross-border “hubbing” or moving gas from one entry/exit zone to another one is also the future of the EU gas market.

In order to achieve that, the European network code development should focus on a number of rather trivial, no regret improvements of technical harmonization. Operational balancing agreements, quality harmonization, standardization of some capacity products, standardization of business practices, such as the EasyGas process, they all could be effective and useful on the way towards further market integration. As a practical example, one could refer to Ireland and the UK. Ireland is an entry/exit zone, but not a liquid hub. They don't need a large connection capacity to the UK. If Irish market parties want to shop, they go virtually to the UK hub. There is no reason to develop one in Ireland. Such cases may also be relevant for other countries and areas as well. Market mergers and or zone mergers may be useful, but they must be analyzed on a case by case basis. Careful assessment of costs, transaction costs and capacity costs, are necessary. Costs will have to be traded against the benefits, especially the one from liquidity. They may not come if the objective market conditions are not fulfilled. That is a clear lesson from the American market.

#### *Price alignment and liquidity*

Here again, the GTM discussion tends to give quite some weight to these issues. Some are arguing that liquidity and price alignments have to be seen as objectives in order to develop (forward) traded market areas, by means of merging or some other connecting device. Others would argue that they could only be seen as relevant criteria for assessing for market developments<sup>8</sup>. Both parameters have basically a short term connotation and could definitely not match with the long term features of the market. For example assessing whether there is sufficient liquidity only makes sense when the assessment is based on the whole market (reflecting not only the exchanges, but also OTC-transaction and bilateral contracts). Precise definitions and statistical measuring are part of the difficulties that are faced in using liquidity as an indicator. Liquidity could be measured by different means, such as churn rates, or off-spreads. Statistical errors or even risks of manipulation could influence conclusions, but in a more general way, standardized criteria in a target-setting way could always inhibit market dynamics. Using liquidity to assess the success of EU gas markets is therefore not the way to go. If it would turn out that the case of a company, that started to buy via an exchange, chooses to conclude a long term bilateral contract, would be perceived as a reduction in liquidity. This would be regarded as a setback, while it enhances supply security.

Price alignment is used by some as an argument to connect markets, as price differentials are by definition seen as a result of too little competition. Price differentials between two neighboring markets do not always reflect the risk of some form of market abuse, but could usually be explained by a number of aspects, such as differences in market structures and institutions, fuel mix policies, unforeseen demand due to changing weather conditions, taxation and alike. It could also be considered as a relevant market signal to the need for

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<sup>8</sup> See for instance Glachant's paper on the MECOS-model, pages 8-9.



investing in infrastructures such as pipelines and storage capacity. A single gas price in the EU for instance would imply that any new LNG terminal in the EU should be built in Greece. There is no need to strive for price alignment. If prices in the Netherlands and UK are the same it could well mean that the UK needs storage. And if they do not deviate there will not be any storage built in the UK, probably slightly more expensive than in the northern part of Germany. Statistics are also a difficulty, such as with liquidity, to be overcome when prices are compared. Here again, it would be a risk if price aligning becomes a political need, but price assessments and understanding differentials could be very useful in relation to market developments and market behaviors.

#### *Cross-Border Capacity, Congestion, Allocation and Markets*

Whatever model or approach is chosen about further connecting market areas, the issue of long-term capacity allocation seems to be unavoidable. There is a market for commodity, but there clearly is a growing need to consider effective European capacity-markets as well. A market that would be instrumental in allocating long-term capacity rights, subject to tight congestion management provisions. Without these any long term allocation would be risky and tends to restrict existing capacities to reserved rights from earlier decades. The more effective (contractual) congestion management, the more capacity allocation on a long term basis would be possible. One way of approaching this issue is via a process of advanced and modified open seasons, integrating and coordinating across several entry/exit zones and across national borders. Participation in the process should not be limited to supply companies, to shippers, but governments, regulators, and other TSOs should be playing a role as well. Such a process could also give due account to the need for longer term capacity rights.

Enhancing effective interconnections for the European market cannot be reached without the role of long term capacity contracts. It is a question that the whole gas industry will have to face and open seasons to date did not always give the right opportunities to invest in new capacity. In specific cases public money from the EU was required and that may even be the case for the future. But one should be very careful in using that option. If the market sees no reason to invest, it could either be that the regulatory framework does not provide the right condition, or there simply is no real market need. The proposed EU Regulation on Energy Infrastructures<sup>9</sup> presents an opportunity for the NRAs and ACER to adapt regulatory approaches to meet the interests of new cross-border investments. In case there is no alternative for financing specific new transmission capacity, EU public funds could be considered as really a last resort, under stringent and carefully framed conditions and criteria. This could be a solution for certain areas but not for the current European network and especially not in the northwestern part.

Anyway, the coordinated approaches suggested would also be good for supply security, but this is not the only aspect. Competition in capacity might also be worthwhile pursuing, as scarcity in transmission capacity is not to stay per definition. One main lesson from the American model is that regulation and competition can go hand in hand. Regulation of transmission or transportation may also be necessary, but competition can take place even under regulation. Some kind of harmonized regulation would then be required, especially for

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<sup>9</sup>Proposed Regulation on "Guidelines for trans-European energy infrastructure"...

See <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:52011PC0658:EN:NOT>

the cross-border context. Although for tariff regulation EU regulators tend to follow similar approaches, but some monitoring exercise would be very useful. Regulation 715 gives already some provisions that clearly indicate that monitoring of tariff setting criteria, including tariff structures, could be done.

Assessing future needs in relation to managing cross border capacity developments and the role of open seasons, it would be useful to reflect also on the structural developments that are taking place in and for the TSOs themselves. The 3<sup>rd</sup> package clearly gives regulatory options for further strengthening their independence, meaning that already as of March 2012 they need to be really independent. Regardless of which model they choose, it will have an effect on the way they are being regulated. They shouldn't be regulated as though they are still part of this integrated company with all the links with production, trade and supply that could result from that. That will and should have an effect on how regulation works, even for the internal networks. This is something to take account of.

All these ideas for more cross-border coordination would further the development of cross-border markets, allowing hubs to be emerging when market conditions are right. ACER could be key in this respect, focusing its mandate for enhancing inter-NRA cooperation to bring them together and set them to work. To work on making trans-border open seasons a functioning process, which is presently not the case with the recent examples for the interconnection between Slovakia and Hungary and the one between Germany and Poland? These two procedures were fully unmatched, no common allocation rules, no common commercialization of products and no common time origin. To work also on the monitoring of tariff structures and settings, exploring the right regulatory conditions for matching risk-reward balancing in new investments and for developing sound tools for analyzing cross-border cost/benefits.

#### *Regional differences and regional markets*

There is a risk that the GTM-discussion would become too theoretical, not considering the actual functioning of gas markets in the EU, where major regional differences do exist. It is sometimes heard that one-fits-all approaches should be the way forward. Especially when too much attention is paid to specific problems in specific regions and or markets. Such one -fits-all approach might be counterproductive. For instance if it might for sound reasons be useful to introduce market-coupling in a certain area and to go for a pilot in exploring the potentials, this would not mean to say that for other areas similar solutions should be considered. Or, when a particular market environment might be trying to discourage the role of long-term contracts and is able to strongly emphasize spot markets due to its particular supply situation, this would also not be the obvious way forward for continental markets with different supply possibilities.

These sometimes detailed proposals and approaches are also seen in the context of the ongoing discussions on the framework guidelines and network codes for capacity management and congestion management. To translate these specifics into a GTM would again create severe difficulties as -in a more general way- a GTM is just supposed to be global and forward looking by nature, with sufficient room for market circumstances and conditions in different parts of the EU. It would therefore be necessary to take duly account of what really is happening in specific regional markets and use that as a basis to work on in

the particular market areas. The GTM should try to accommodate these developments in a coherent way.

On the other hand, it goes without saying that the present process for implementing the 3<sup>rd</sup> package is moving and going. A GTM should give the relevant focus, and could anyway result in a vision that is really in line with developments in NW-European markets and a second vision that gives the right framing for the markets in the Southeast. The MECOS-model as proposed also has these kind of alternatives in it with the market-area and trading region model. The trading region model could maybe more interesting for some countries in central and eastern EU markets, whereas merging of market areas might be the way to go for western areas. The ASCOS-model also stresses the point of regional differences. The big question however for moving towards a single market remains on the table, i.e. how to bridge these differences. Harmonization might be a key word to that, an easy word for a very difficult process. If this is not happening, many requests for exemptions to the codes and the guidelines may be expected, simply since the regions, the regulators and the TSOs are not ready for moving towards more harmonization, for instance on balancing or on coordinated open seasons as earlier mentioned.

The same would apply to tariff differentials for transmission. On the basis of the non-discrimination principle such differentials, that might be a sound conclusion as a result of open seasons for new builds and customized long-term contract, should be looked at with skepticism and reluctance. Especially when this is accepted in an up-front process. It may well be in an auction process that is designed to look some 10-15 years ahead, even when quarterly products for 15 years are for sale, long term bookings in terms of a capacity price might be relevant. But to start upfront by introducing tariff differentials for long term bookings may not be the right one. And here again, differentials and differences in market conditions might be sound outcomes, accepting regional approaches and regional differences.

#### *The external supplier perspective*

More different views on the GTM-discussion are coming from the perspective context of the EU's external suppliers and the more particular microeconomic realities. If different suppliers are competing with each other bringing gas from the same supply source, one could argue whether that is a real market. It is not the market where gas supplies are competing for market shares, having price competition. The upstream supply side is based on a handful of suppliers. It is therefore an oligopoly. The question is how to face an oligopoly. This cannot be done by regulation. The EU cannot dream anymore of regulating Russia, Algeria, Norway and the others as was done in the old days, some 10-15 years ago. All major national countries had their single buyers, finding out that it was better to cooperate than to compete. On the upstream side suppliers have learned that lesson. In the EU's Northern Dimension Norway and Russia in reality don't try to undercut each other. Would LNG change the game? We see in today's world that Russia and Qatar seem to divide the market, where Qatar will continue to focus on Asia as these consumers are still happy with some form of oil price related conditions, leaving the price destructions from spot markets to the Russians to face.

On the other hand, these suppliers are facing the new unbundled world of natural monopolies in transmission. Hence the major companies coming from the outside are facing

a variety of buyers and re-sellers and some oligopolistic devices in transmission. Regulated entities however with different national regulatory authorities, not a single one. And also a rather vague discussion on competition, on liberalization and on privatization. Is there an EU answer on facing oligopolies that supply crucial amounts of gas to the EU market? And what is the view on the variety of monopolistic TSOs with an increasingly common network crossing national borders that are regulated by different national entities? Where in the GTM is there a vision on this, or at least some kind of recognition? Questions that are maybe too tough to answer now, but in the post 2020 context they should be a relevant part of any EU Gas Supply Security Architecture.

### *The way forward for GTM?*

The process of setting a number of specific framework guidelines as a basis for the Network Codes is continuing. Continuing with many consultations with stakeholders, with sometimes intense discussions and sometimes not. The whole thing is under some political pressure by the February 2011 Council conclusion to finalize the internal energy market by 2014/15. Being specific on sometimes very detailed issues is running the risk of missing the overall perspective. And there the Gas Target Model should come in. but does it and is it realistic to expect that?

This and other workshop discussions are clearly indicating that there are still a number of very relevant issues in a GTM that are not yet fully digested, understood, or let only concluded in a coherent and consistent way. Locking people up for a week or so to let it happen would sound nice, but is not realistic. One has to realize that in an ideal world a GTM was formulated before or maybe during the negotiations of the 3<sup>rd</sup> package<sup>10</sup>. That was not possible either. One has to realize that the process is one that is still coming from 27 member states, with different markets and history, with different stakeholders and sometimes very deeply founded strategic security considerations. We have to recognize that it is a process to ensure that the framework guidelines and guidelines are not contradicting and are really interlinking with each other. This is a major task for both the NRA's and ACER, together with ENTSO-G.

This would not mean to stall the thinking about the GTM. In a way, it may be uncoupled from the process of implementing the 3<sup>rd</sup> package. Gas is to stay in the foreseeable EU energy mix. Its role will change, especially in power generation with its characteristics of being a very flexible fuel to manage the growing role of intermittent energy sources. This role will bring challenges that go beyond the 3<sup>rd</sup> package, both in terms of business models with suppliers and on using infrastructures. New market and regulatory designs might be needed to meet these challenges. But, realism should prevail. ACER, regulators or policy makers should not interpret their roles as "knowing better than the market" and market parties should understand and consider how to act in a balance between ex post and ex ante interventions by the respective market and regulatory authorities. That would include the need to find a way in creating joint understandings between oligopolistic supply structures and non-oligopolistic demand structures in a context of semi-monopolistic vital infrastructures.

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<sup>10</sup> It would be interesting to note that a draft GTM, as a so called "strategy paper", was already formulated in the beginning of the Madrid Process and was considered as a useful vision to continue to work on. The paper is still available under....., giving also today some food for thought.

There may however still be some quick wins to consider, where especially ACER could move on the basis of the Gas Regulation. A process of coordinated and timely auctions for short-term capacity allocations at borders, maybe together with some interoperability measures. If these and some other basic congestion management procedures were in place, “the Slovenia trader” would probably be in a better position. This shouldn’t be too difficult to start with. Also the region in Southeastern Europe and their developments towards proper functioning markets have substantial infrastructure that is not used as it is even still far from any 2<sup>nd</sup> package requirements. It is for instance impossible to understand why Bulgaria remained without gas in 2009 when it is connected by two pipelines to LNG terminals in the region that could physically provide more than twice the Bulgarian demand. Such issues and maybe some more could be seen as negotiable points in a win-win situation between the EU and Gazprom in the South Stream dossier. A further quick win might be found in the harmonization process of a number relatively easy and detailed but important elements with respect to cross-border trade, including ones on coordination procedures for auctions, tariff harmonization devices and the “gas day” definition. All these quick wins might be further considered before any more far-reaching approaches are introduced.

## 5. Finalizing the Project on a New EU Gas Supply Security Architecture

This workshop report will be combined with the reports of the 3 other workshops under the project, i.e. the one at FEEM-Milan on 5/6 May, the one at the Loyala de Palacio Chair in Florence on 28 October and the one that will take place at Wilton Park on 23-25 January 2012. They will be jointly published in an updated version, together with a set of conclusions and recommendations in April 2012..

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