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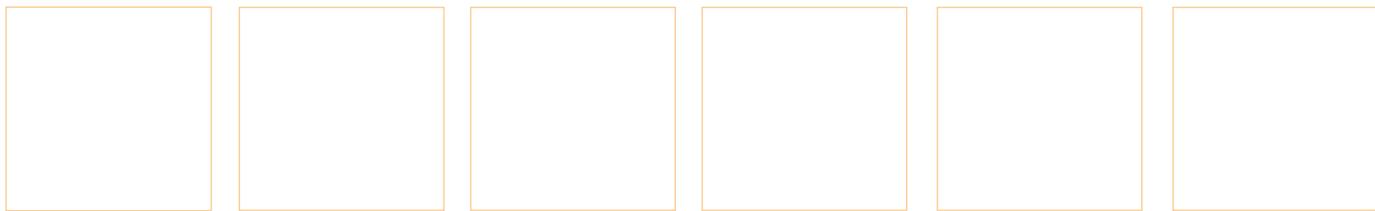
The Gas Target Model in Central Europe: a Study of the V4 Region

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Highlights

- Due to the small size of their national markets, V4 countries (Czech Republic, Hungary, Poland and Slovakia) should undertake a joint implementation of the Gas Target Model that has been proposed for the European market.
- A V4 level implementation would benefit from current interconnection plans and allow improved competition and liquidity, and a better exploitation of new market opportunities.
- Joint V4 implementation proposals would be more likely to succeed if in line with private development interests and with other initiatives undertaken in the wider Central and Eastern Europe.
- Theoretical available models span from a single price and balancing zone, to a single price zone with separate balancing areas (trading region), to market coupling and to independent connection to an external liquid market.
- In practice, theoretical models are not mutually exclusive. The trading region between Austria, Czech Republic and Slovakia could be accompanied by transitional market coupling with Hungary and Poland, with a view to full integration.
- Timely completion of interconnection plans and harmonised implementation of European Network Codes would underpin the process; on the contrary, single-handedly customer protection measures may hamper market development and integration.
- Institutional development should be minimised and existing or market-driven forms of coordination should be preferred. Further TSO collaboration is likely, and could lead to alliances, as recently experienced by other European TSOs.

1. This Policy Brief is largely based on a Report prepared for the Ośrodek Studiów Wschodnich (Centre for Eastern Studies), Warsaw, Poland, under International Vysehrad Fund's Standard Grant No. 21220287 Responsibility about the contents remains only with the author.



The current situation, challenges and opportunities

The natural gas markets of Vysehrad Four (V4) countries are characterised by very similar problems: dominance of Russian supplies under long term, oil linked contracts; limited inter-connection (except between Czech Republic and Slovakia); overwhelming East-West flows; limited, though growing, internal competition and as a consequence poor market liquidity; expected increasing demand due to the gradual loss of competitiveness of more polluting fuels, as well as of more gas penetration in the residential market (notably in Poland). Because of these facts, V4 countries have long suffered from low security of supply standards.

The similarity of issues and geographical proximity have led the V4 countries to undertake closer collaboration, notably by agreeing on a common security of supply strategy, including regional emergency planning. It is not surprising that they have also opted for a common implementation of the *Gas Target Model* that has been adopted for the medium-long term design of the EU gas market. Yet it is clear that Slovakia and even more the Czech Republic are more integrated into the Western European market, thanks to larger interconnection endowed with firm reverse flow capacity; whereas Hungary has several inter-connections that require improvement, and the interconnection of Poland with Western Europe and the other V4 countries is very limited yet. Market competition so far has suffered from the small size of national markets, entailed by these infrastructural characteristics. However, ambitious plans lead to expect effective interconnection of all V4 countries by 2017-18, as part of the *North-South Corridor* in Central Europe.

V4 collaboration on the gas market starts at a time of important changes, which are sources of challenges as well as of opportunities. Cheaper gas has been available in the West for a few years, largely as LNG landed in Western Europe. Although this source has been dried by the overwhelming demand growth of emerging markets, gas demand stagnation and a wave of price reviews has kept spot prices in the most advanced markets below those of V4 countries.

The implementation of the European Network Codes and of the recently adopted EU Congestion Management rules may further open up pipeline capacity with Turkey and Greece, in the same way as it has recently happened for interconnections between V4 countries and their Western neighbours, which have become partly available for (physical or virtual) reverse flow services. More generally, ENC's will require a major review of market regulation, which represents an opportunity for harmonization within the V4 region, with a view to establish a common market.

On the other hand, the postponement of the Nabucco project is widely seen as a stop on new supplies to the region, although more could come through the new expected TAP or South Stream pipelines.

Less certain but potentially even larger change potential could obtain from other sources, like new production opportunities in the region and in the neighbouring countries, notably from unconventional gas plays, as well as from new LNG terminals in Poland and the Balkans. Surprises may also and a more aggressive competitive behaviour by companies that sell Russian gas, which might be strengthened after the partial lifting of the Gazprom monopoly.

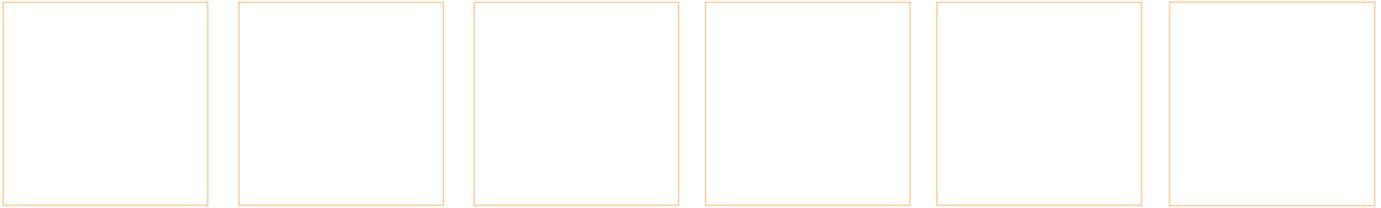
Hence, the V4 decision to cooperate for the exploitation of these opportunities is clearly justified. The GTM studies have noticed that investments aimed at a certain market areas are boosted by the availability of a liquid and reasonably competitive market. In turn this requires a market size of at least 20 Bcm/year and the availability of at least three different sources, with a reasonably low market concentration (with an HHI index around 2000)². None of the V4 countries can individually achieve any of these conditions at present: only Poland may have such capacity in coming years, although through LNG supplies that may be rather costly in the short term and a very dramatic fall of the incumbent's market share, which could probably be achieved only by an aggressive gas release programme. Otherwise, the availability of three different sources is currently possible only through "backhaul" supplies from the West, which is not direct, often interruptible and therefore less reliable. On the other hand a common V4 market would allow the achievement of at least two such conditions (market size and concentration) and help achieving the third one by triggering investment in new supplies and connections.

Principles of an enhanced V4 collaboration

The political proposals for a joint V4 implementation of the GTM calls for the establishment of a virtual trading point in the region, supported by a single balancing zone, and with an energy exchange for gas trading. Harmonised transmission products would ensure gas flows throughout the region and across it.

It is suggested that the implementation of these cornerstones should be consistent with three policy principles:

1. Any market design should be implemented consistently with market opportunities, possibly by means of policy instruments that are suitable to foster the smoothest convergence of business and political decisions (including
2. Jean-Michel Glachant, "A Vision for the EU Target Model: the MECO-S Model", EUI Working Paper RSCAS 2011/38; <http://fsr.eui.eu/Publications/WORKINGPAPERS/Energy/2011/WP201138.aspx>



taxes, subsidies and action by government-owned companies). In other words, the objectives of V4 collaboration should be fully consistent with business interests and companies' strategies rather than against them;

2. Existing cooperation projects extending beyond the V4 region should be encompassed in the region rather than substituted for, notably if these involve the integration with more advanced and competitive markets;
3. A process - rather than an abstract market design - should be devised. Priority should be given to flexible solutions that may evolve into one of the available theoretical model, or a combination of them, without regrets for any investment that might have been taken towards inadequate solutions.

All V4 countries are Members of the South-South East European market region, one of three into which the Gas Regional Initiative is articulated (GRI SSE: it also comprises Italy, Slovenia, Austria, Romania, Bulgaria, Cyprus and Greece). The V4 countries have important interconnections with other SSE countries, in particular with Austria and Romania, as well as with other EU countries, particularly Germany. Within the GRI SSE, several pilot projects and studies involving V4 countries are currently in preparation. Almost all of them involve relationships on the East-West axis, like the GATRAC project between the Czech, the Slovak and a German TSO (Ontras), allowing for the purchase and management of bundled capacity across the three borders; bundled capacity allocation project between Poland and Germany's and between Hungary and Romania. Further common activities deal with the implementation of EASEE-Gas Common Business Practices, a cross border balancing platform, and a trading region including Austria, the Czech Republic and Slovakia.

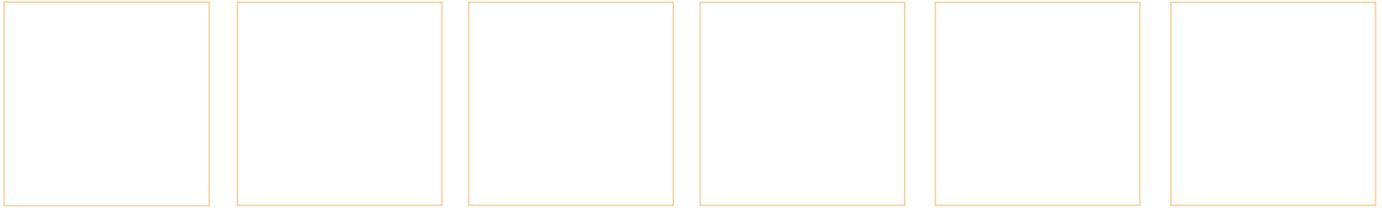
Applicable high level design models

The integration of V4 countries may start from several basic models. Some of them can also be combined or modified, so that they become different development stages of the same process rather than alternative solutions. Their feasibility is related to infrastructure development in various ways that are discussed in the Report.

- *Single cross border market zone.* The establishment of a single entry-exit and balancing zone has the advantage of ensuring the achievement of the GTM objectives in terms of market size and concentration, and could bring the V4 close to the GTM objective of having access to at least three different significant sources once suitable interconnection is developed for interconnection. The objective would be fully met if connections to new sources like Caspian gas or Mediter-

anean LNG are built, or if new unconventional resources are developed inside the V4 countries. On the other hand, this is a demanding solution, as it requires full harmonisation of market rules and practices, lack of internal congestion and a single market operator. This solution does not necessarily require the full merger of TSOs, but at least a very close cooperation and probably the establishment of a coordination body for revenue compensation, dispatching and balancing related activities. A single market operator is expected to emerge once the zone merger is complete.

- *Trading region.* This concept has been suggested as an option for the European GTM. It envisages a single tariff and price zone (and hence a single market operator) but separate balancing areas, which may coincide with individual (National) TSOs, or parts thereof. Like the next one (market coupling), this model is unprecedented in gas, and needs to be clarified on several aspects. It would still require a remarkable coordination effort on tariff and dispatching issues, but less than with the single zone.
- *Multiple coupled market zones.* Several zones with formally working spot markets, though not very liquid, may be connected through market coupling once they are interconnected. The interconnection may be limited and some congestion may occur and it would be treated by an algorithm where different prices may emerge after joint bids are presented daily in the coupled zones. This solution requires less interconnection investment but some market rules harmonisation effort, as for the single price zone. Yet no single tariff or dispatching are necessary. There may be separate market operators but a common office for market coupling must be designated. The main difficulty is the very limited experience in adopting the market coupling concept in gas markets. Some experience and studies are being developed within the NNW Gas Regional Initiative and may provide advice about the feasibility and condition of market coupling.
- *Independent connection to more liquid zones.* This solution avoids any proposal of active market integration, with the exception of those necessary to ensure the security of supply standards required by Regulation 994/2010/EC. This approach considers that markets can in fact be integrated, with substantial price alignment, by market forces that select one or more favourite trading spots, which act as benchmarks for other market zones. This happens if all connected zones can "shop" in that market, even with limited direct interconnection between them. Likewise, V4 countries may limit their interconnection and harmonisation to what is justified by market decisions or physical security of supply requirements, but decide to elect (e.g.) a German (or a future merged German-Dutch) hub as their natural mar-



ketplace. Under this solution, the regulatory strategy would be partly different and focus more on ensuring the viability of connections with the most liquid hubs and the availability of transmission products to move gas from/to it.

Proposals for joint GTM V4 implementation and related difficulties.

Upon consideration of the possible models, the market situation and opportunities and the available theoretical models for market integration, the following strategy may be proposed for joint GTM implementation in the V4 stakeholders. This proposal considers the most likely development of new infrastructure, notably interconnections between the V4 countries, and is tailored so that deeper integration follows the completion of the connecting pipelines.

- i. *Establishment of working connection among the V4 and with neighbouring countries.* NRAs and TSOs should work to ensure that market rules and procedures ensure the smoothest connection for delivery of gas to and from hubs across the western V4 border. In particular, harmonised capacity products should be developed as part of the implementation of the European Capacity Allocation Network Code, including for delivery by backhaul (virtual reverse flow), between all interconnected V4 and if possible through intermediate countries. The products should also ensure deliveries to and from working Western European hubs. This activity can start immediately as it does not require any new infrastructure.
- ii. *Development of market zones.* Existing entry-exit market zones should be consolidated and remaining wholesale price controls gradually phased out. The market zones may include the Austrian/Czech/Slovak trading region proposed within the GRI-SSE, using the large existing interconnection capacity of the three countries. However the adoption of this solution should be integrated by the connection of the Hungarian and Polish market zones, subject to market coupling due to the limited existing interconnection. It is however beyond the scope of this Policy Brief to take positions or provide suggestion about the inclusion of other countries into the V4 market.
- iii. *Connection of the V4 countries.* Physical interconnection between Hungary, Slovakia and Poland as well as enhancement of the link between the Czech Republic and Poland should proceed rapidly for the sake of credibility of any further V4 integration plans. Interconnections between the V4 countries and absence of congestion within gas network is a prerequisite for further actions aimed at regional GTM implementation.
- iv. *Joint implementation of the European Network Codes.* This would pave the way for harmonised market rules that would be the basis of integration as a single market zones or as a trading region. Coordinated work by V4 NRAs and TSOs would also facilitate their hard tasks in the implementation of ENCs, and improve regulatory quality and stability.
- v. In particular *NRAs' and TSOs' cooperation* would be targeted at:
 - a. the establishment of a single entry-exit tariff zone;
 - b. Coordinated implementation of the Capacity Allocation Mechanism (CAM);
 - c. A coordinated capacity development mechanism, based on integrated auctions or open seasons, with contributions from public institutions;
 - d. Harmonised balancing rules would be useful, although this would not necessarily mean the merging of the balancing zones, which should be decided at a later stage;
 - e. Common congestion management criteria, in line with the new Annex I of Regulation 715/2009/EC.
- vi. V4 countries should also work towards the adoption of *common criteria for customer protection*, based on wholesale prices established in the V4 market(s). It is worth recalling that the (even perceived) imposition of price freezes that may not cover costs is a major obstacle of market liberalisation and integration and should be temporary and related to objective criteria.
- vii. *Implementation of a single market zone in the V4 region* Standardised capacity products linking the zones should be developed building on the examples that are being developed (GATRAC, PRISMA, Hungary-Romania etc.) and be subject to co-ordinated auctions. Other neighbouring countries (Austria, Romania, Slovenia, Croatia, and others) may be invited to join the process.
- viii. *Decision on final market design.* The effort to carry out the previous steps will probably take about three years. Only at that point and in relation to the resulting outcome a choice could be made about the final market design, choosing about the maintenance of the starting mix, a trading region extended to all V4 (and possibly other) countries, or a large single market and balancing zone. The outcome should be decided by an operational study evaluating the



possibility of dispatching and balancing in the whole zone in relation to actual flows and available infrastructure.

Institutional issues

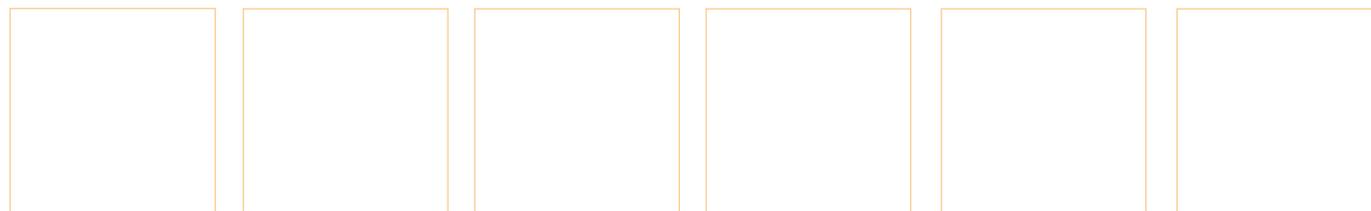
The pursuit of this plan would entail significant institutional developments. In order to enhance the credibility and ensure a steady implementation of the plan, several entities in charge of their achievements must be identified or created. The establishment of joint bodies for an enhanced co-operation at the V4 level would stress the credibility of the market rules, as internationally coordinated regulations are much more stable than national ones.

However, the creation of new bodies should be minimised to avoid bureaucratisation. The GRI SSE may offer a suitable institutional framework for the regulatory harmonisation, provided it becomes operational (following the electricity RI example) and is practically articulated into smaller sub-zones, among which one should be the V4. ENTSOG, ACER and other organisations also offer platforms for international co-ordination. On the other hand, it should be clear that V4 integration should be a stronger and tighter link than the general EU integration process.

Within such framework, committees for the streamlining of market rules and the implementation of network codes could be established, with leading roles divided among the participating NRAs and TSOs, in charge of capacity product organisation, allocation and congestion management; interoperability and business practices; tariffs; and balancing.

A common gas exchange need not be established by international agreement but may emerge from market developments. On the other hand, a body in charge of infrastructure development procedure, which may be located at regulatory level, would probably be useful.

TSO coordination of transmission management activities, tariff revenue calculation and redistribution would be necessary and would represent a major development, as it would probably need the competences of an Independent System Operator. This is however an open issue: some TSOs even in the region are trying to envisage cooperation in the establishment of common market zones without a formal coordination body. On the other hand, the evolution of the European gas transmission industry is probably heading towards broader collaboration and alliances, even though this does not necessarily require full mergers.



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