



Summary and evaluation of comments received on EWI study:

*“Model-based Analysis of Infrastructure Projects and
Market Integration in Europe with Special Focus on
Security of Supply Scenarios”*

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INFORMATION PAGE

Abstract

This document E10-WG-71-04 is an ERGEG document on Summary and evaluation of comments received on EWI study.

In order to prepare ACER for its future role in assessing the plan, ERGEG took the initiative to develop its own recommendations on the TYNDP, and to manage a study on a “Model-based Analysis of Infrastructure Projects and Market Integration in Europe with Special Focus on Security of Supply”, which was elaborated by the Institute of Energy Economics at the University of Cologne (EWI). Based on a gas flow optimisation and infrastructure modelling approach (TIGER), this study analysed possible infrastructure developments, their effects on market integration and security of supply in Europe by application of different demand and infrastructure scenarios in order to identify existing and potential bottlenecks within the European gas grid.

This document serves as a summary of stakeholders’ written comments on the EWI study and ERGEG’s view on the feedback received.

Target Audience

Energy suppliers, traders, gas/electricity customers, gas/electricity industry, consumer representative groups, network operators, Member States, academics and other interested parties.

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Related Documents

CEER/ERGEG documents

- ERGEG evaluation of the European Ten Year Network Development Plan 2010-2019 published by ENTSOG, Ref: E10-GIF-01-04, 11 November 2010
- Final ERGEG Recommendations on 10-year network development plan, 13 July 2010, Ref. E10-GIF-01-03, 13 July 2010
- ERGEG recommendations on the 10-year network development plan - Evaluation of responses, 11 November 2009, E09-GNM-10-08
- ERGEG recommendations on the 10-year gas network development plan, 11 March 2009, E08-GNM-04-03

External documents

- ENTSOG European Ten Year Network Development Plan 2010-2019, 23 December 2009, Ref. 09ENTSOG-02
- Model-based analysis of infrastructure projects and market Integration in Europe with special focus on security of supply scenarios, EWI, Final Report, 9 August 2010
http://www.energyregulators.eu/portal/page/portal/EER_HOME/EER_PUBLICATIONS/CEER_ERGEG_PAPERS/Gas/2010/EWI_Study_17062010.pdf
- Regulation (EC) No 713/2009 of the European Parliament and of the Council of 13 July 2009 establishing an Agency for the Cooperation of Energy Regulators
- Regulation (EC) No 715/2009 of the European Parliament and of the Council of 13 July 2009 on conditions for access to the natural gas transmission networks and repealing Regulation (EC) No 1775/2005
- Directive 2009/73/EC of the European Parliament and of the Council of 13 July 2009 concerning common rules for the internal market in natural gas and repealing Directive 2003/55/EC

Table of Contents

1	Background	5
2	Received comments.....	6
3	Consideration of responses	6
3.1	General remarks	6
3.2	Q1: Do you agree with the modelling approach and the assumptions used?.....	7
3.3	Q2: Do you think that a model-based analysis of the European gas network - e.g. similar to that presented in the study conducted by EWI - would benefit the TYNDP?	8
3.4	Q3: Do you agree with the selected scenarios (supply, demand, and infrastructure)?...8	
3.5	Q4: Do you agree with the process taken by ERGEG to present and discuss the taken assumptions and selected scenarios using public workshops?	9
3.6	Q5: Do you agree with the results of the EWI analysis (e.g. location of bottlenecks)? .10	
4	Conclusions & way forward.....	10

1 Background

The elaboration of a Community-wide ten-year network development plan (TYNDP) is requested by the Directive 2009/73/EC, the Regulation (EC) No 713/2009 and the Regulation (EC) 715/2009. This plan has to assess the existing gas infrastructures and the expected network investment projects for the following ten years. The TYNDP shall be non-binding and published every two years. ACER has to verify the consistency of the Community-wide TYNDP with national network development plans and shall recommend amendments to the plans, if necessary. ACER also has to provide a reasoned opinion and recommendations to ENTSO-G and the Commission, if the draft TYNDP, or aspects of it, do not contribute to effective competition, non-discrimination and efficient functioning of the market.

The first Community-wide TYNDP was published in December 2009 by ENTSO-G. In order to prepare ACER for its future role in assessing the plan, ERGEG took the initiative to develop and consult its own recommendations on the TYNDP¹, and to manage a study on a “Model-based Analysis of Infrastructure Projects and Market Integration in Europe with Special Focus on Security of Supply”², which was elaborated by the Institute of Energy Economics at the University of Cologne (EWI). Based on a gas flow optimisation and infrastructure modelling approach (TIGER), this study analysed possible infrastructure developments, their effects on market integration and security of supply in Europe by application of different demand and infrastructure scenarios in order to identify existing and potential bottlenecks within the European gas grid. The aim of this study was to increase regulators’ know-how on European infrastructure, providing ERGEG and ACER with a tool which contributes to develop a European perspective on infrastructure needs in the coming decade and to help evaluating ENTSO-G’s work on the Community-wide TYNDP.

In June 2010, ERGEG hosted a workshop to present and discuss the results of the study and the issues related to such a “top-down” modelling approach (e.g. regarding the applicability of the model for network development and planning). The workshop participants requested for another opportunity to comment on the study. In order to provide structured feedback, ERGEG published a list of five questions on its website and gave the chance to comment on the study by end of August 2010.

In addition to ERGEG’s first evaluation of ENTSO-G’s TYNDP³, which also compares the modelling approaches and results of ERGEG’s and ENTSO-G’s analyses, this document serves as a summary of stakeholders’ written comments and ERGEG’s view on the feedback received.

¹ Ref. E10-GIF-01-03, 13 July 2010, http://www.energy-regulators.eu/portal/page/portal/EER_HOME/EER_PUBLICATIONS/CEER_ERGEG_PAPERS/Gas/2010/E10-GIF-01-03_TYNDP-FinalRec_13-July-10.pdf

² Published in May 2010 http://www.energy-regulators.eu/portal/page/portal/EER_HOME/EER_PUBLICATIONS/CEER_ERGEG_PAPERS/Gas

³ Ref: E10-GIF-01-04, 11 November 2010, http://www.energy-regulators.eu/portal/page/portal/EER_HOME/EER_PUBLICATIONS/CEER_ERGEG_PAPERS/Gas/2010/E10-GIF-01-04_1stTYNDP-Evaluation_final.pdf

2 Received comments

EREG received 6 written responses; one of them is confidential. Table 1 shows the list of non-confidential responses.

Table 1: List of non-confidential responses

Company/Organisation
Edison
TAP
E.ON
ENTSO-G
SPP

The non-confidential statements will be published at www.energy-regulators.eu.

3 Consideration of responses

3.1 General remarks

Most respondents welcomed the initiative and approach of EREG & EWI, but regard the EWI-modelling as a complementary tool, on which itself no investment decision can be based upon. If investments are to be made, this should always be a case-by-case decision depending on technical analysis, market demand, economics, political (security of supply) and regulatory issues.

Furthermore, it was criticised, that the TIGER model is quite a theoretical / hypothetical model, which does not reproduce contractual flows and (detailed) physical constraints (such as pressure stages, diameter, lack of reverse-flow), but is rather based on published (freely allocable) capacities (which can be lower than technically feasible) and broad economic assumptions.

EREG's view:

EREG fully agrees on the claim that investments should always be based on case-by-case decisions also taking technical analyses, market demand etc. into account. EREG is also very well aware of the TIGER model's theoretical nature and its constraints, but believes that the EWI approach to model (cost) optimised flows and infrastructure development (in order to identify existent and potential bottlenecks) adds significant value to a first-time "top-down" evaluation of the EU gas grid (development).

A reproduction of contractual flows is not always desirable, or efficient (due e.g. take-or-pay contracts) in terms of capacity usage. However, simulated flows may be used as an indication.

After all, ERGEG believes that the EWI model can be improved and will certainly evolve with the relevant data made available by TSOs and market participants.

3.2 Q1: Do you agree with the modelling approach and the assumptions used?

From the respondents' point of view, the modelling should be combined with the bottom-up approach taken by TSOs/ENTSO-G. Full transparency of data used and stakeholder involvement to ensure accuracy of data and results have been highlighted as well. Some respondents also claimed that the cost assumptions made by TIGER are based on ten year old studies and should be updated. It was also stated that the modelling approach assumes fixed cost assumptions for LNG supply and does not consider global interdependencies.

Furthermore, it was criticized that no information on domestic bottlenecks is taken into account. According to some respondents, the model does not account for long term contracts which implicate fixed flows on certain pipelines and that the study therefore only shows limited resemblance to real load flows. Others doubt that the performed flow simulation is suitable to define the networks physical characteristics, because compressors, IP stations, pressure constraints etc. are not taken into consideration.

ERGEG's view:

ERGEG is also of the opinion that a model based top-down analysis should not replace the TSOs' bottom-up approach, but rather complement each other. This view was in fact, always favoured and highlighted by ERGEG in its recommendations on TYNDP.

ERGEG believes as well that a consistent and viable data set is essential to ensure accuracy in modelling. Cost assumptions that are based on outdated studies of course need to be - and will be - updated.

Regarding the comment on domestic bottlenecks, it should be stressed that domestic bottlenecks were detected / modelled by the study, but since the focus of the analysis was set on a European level, they have not been further evaluated.

ERGEG would also like to highlight that technical flow modelling of EU network is not (yet) possible, while it was also out of scope of the EWI study.

3.3 Q2: Do you think that a model-based analysis of the European gas network - e.g. similar to that presented in the study conducted by EWI - would benefit the TYNDP?

Regarding the model-based analysis of the European gas network, some respondents state that the selected model should not be used to prioritise certain investment projects. Some stakeholders argue that there is already a model of the European gas network in a preliminary issue of the TYNDP which could be considered a source for the further issues of the plan. Furthermore, it is stated that such a model could benefit the TYNDP, if it is conducted in addition to regional and national investment plans (bottom-up approach) without replacing them. It was also mentioned that the elimination of every single bottleneck would not necessarily be economically efficient (as investment costs could exceed the costs of the restriction). Regarding the expansion of infrastructure, respondents again stress the importance of case-by-case decisions.

ERGEG's view:

According to ERGEG's first evaluation⁴ (based on ERGEG's recommendations on TYNDP⁵) of ENTSO-G's pilot TYNDP, ENTSO-G's applied preliminary model is not yet sufficient to cover all the aspects required (and delivered by the EWI-study). While ENTSO-G's model is still far away from a common technical flow model, it is currently being improved for application for the next issue(s) of the TYNDP.

ERGEG reiterates its full agreement and endorsement regarding the necessity of a combination of bottom-up and top-down approaches when drafting the TYNDP, while acknowledging the importance of national and regional investment plans.

Moreover, ERGEG agrees on the fact that (economic) bottlenecks first need to be detected and then analysed on a case-by-case basis. Finally it has to be decided, whether it is cost efficient / economically viable to invest in expansion or to treat bottlenecks differently (e.g. via improved congestion management).

3.4 Q3: Do you agree with the selected scenarios (supply, demand, and infrastructure)?

There have been some disagreements regarding the selected scenarios. Some respondents identified discrepancies in certain charts or did not agree on certain assumptions taken in the study (e.g. lower demand for LNG etc.). It was also criticised that varying infrastructure scenarios took into account major infrastructure projects such as Nabucco and North Stream,

⁴ Ref: E10-GIF-01-04, 11 November 2010, http://www.energy-regulators.eu/portal/page/portal/EER_HOME/EER_PUBLICATIONS/CEER_ERGEG_PAPERS/Gas/2010/E10-GIF-01-04_1stTYNDP-Evaluation_final.pdf

⁵ Ref: E08-GNM-04-03, 11 March 2009, http://www.energy-regulators.eu/portal/page/portal/EER_HOME/EER_CONSULT/CLOSED%20PUBLIC%20CONSULTATIONS/GAS/E09-PC-37/Tab2

but did not consider small projects. Moreover, the study got critics for basing its supply cost assumptions on the MAGELAN model, but ignoring results of MAGELAN regarding maximum supply quantities.

According to respondents, all pipeline projects in the Southern Gas Corridor should be considered equally viable alternatives.

Finally, it was criticised that some scenarios were developed under the assumption that North Stream II will not be realised. Due to the advanced stage of the North Stream project, this was denoted an unrealistic assumption.

ERGEG's view:

Firstly, ERGEG would like to point out that there have been public workshops before the start of the modelling and finalisation of the study to conjointly discuss and select adequate scenarios. Additionally, the number of scenario options and computations were limited by financial and time constraints. It should also be stressed that – apart from major projects – also likely (small size) projects have been accounted for (as listed in the appendix of the study). Due to expectedly higher relative effects on the gas flows within Europe, only major infrastructures have been varied among the different scenarios / calculations.

Regarding alternative projects within the Southern Corridor, an evaluation or selection of certain projects has not been undertaken.

Furthermore, ERGEG would like to highlight that the completion of North Stream II was not entirely certain when the study had been commissioned. It was therefore reasonable not to take North Stream II always into consideration when defining the different scenarios.

3.5 Q4: Do you agree with the process taken by ERGEG to present and discuss the taken assumptions and selected scenarios using public workshops?

ERGEG's approach to present assumptions and scenarios using public workshops was welcomed and considered as useful by most respondents. The importance of direct stakeholder involvement for the accuracy of the study was stressed, as well as the opportunity to comment in writing in addition to workshop discussions.

ERGEG's view:

ERGEG will continue to follow that approach (which is equivalent to ENTSO-G's procedure concerning the development of the TYNDP) and is grateful for the stakeholders' continuing efforts and input.

3.6 Q5: Do you agree with the results of the EWI analysis (e.g. location of bottlenecks)?

The results of the analysis are largely seen as helpful by the respondents, but there has also been some disagreement. Respondents highlight for instance the importance of full transparency of data used in order to fully understand the results. Others expressed their disagreement regarding the future prospects of the Turkish gas demand. It was also recommended to carry out additional sensitivity studies to help assess the relevance of identified bottlenecks.

ERGEG's view:

ERGEG acknowledges that both ENTSO-G's TYNDP as well as the EWI study generally delivered comparable results on cross-border bottleneck identification (with some limitations). However, ERGEG welcomes any additional input on assumptions on demand / supply / infrastructure development, e.g. with regards to Turkey, since access to data is restricted to publically available sources. Suggestions on further sensitivities are being considered by EWI in the process of further improving the modelling methodology.

4 Conclusions & way forward

ERGEG would like to thank all the respondents for their participation and helpful views and opinions. ERGEG is encouraged by the comments and considers them as a valuable source for improving methodologies and approaches on the common and progressing work towards achieving the aim of a better European market integration and security of supply. They are further seen as a good starting point for upcoming discussions regarding future investments and infrastructure development.

The next TYNDP will be published in January 2011 – followed by an ERGEG/ACER evaluation. The lessons learnt from the EWI approach will be regarded in the future work of ACER concerning the assessment of the TYNDP and should be taken into account by ENTSO-G for their modelling development as well. ERGEG is looking forward to further fruitful cooperation with all stakeholders.