CEER Blueprint on Incremental Gas Capacity

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INFORMATION PAGE

Abstract

This document (C13-GIF-06-03) puts forward clear principles and processes for the identification and allocation of incremental capacity, with the objective to allow for sound investment decisions, supporting the development of competitive wholesale and retail markets. CEER's work on incremental capacity builds from our consultation *Market-Based Investment Procedures for Gas Infrastructure: Issues and Approaches*[1] (C12-GWG-87-03) carried out in 2012. The blueprint is intended as input to the discussion on EU wide principles and processed for market-based investment procedures in gas transmission capacity. The suggestions presented herein are linked to EU Framework Guidelines and Network Codes for creating a functioning internal gas market for Europe and may feed in to future work by ACER.

Target Audience

European Commission, energy suppliers, traders, gas customers, gas industry, consumer representative groups, network operators, Member States, academics and other interested parties.

Keywords

Gas Infrastructure, Gas Transmission Systems, Gas Wholesale Markets, Gas Transmission Capacity Allocation.

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[1] "Market-Based Investment Procedures for Gas Infrastructure: Issues and Approaches – a CEER Public Consultation Paper", Ref. C12-GWG-87-03, 18 June 2012, http://www.energy-regulators.eu/portal/page/portal/EER_HOME/EER_CONSULT/CLOSED%20PUBLIC%20CONSULTATIONS/GAS/Investment%20Procedures%20for%20Gas%20Infrastructure/CD/C12-GWG-87-03_%20Market_based_investment_procedures_final.pdf

Related Documents

CEER documents

- "CEER Evaluation of Responses on the public consultation paper on Market-Based Investment Procedures for Gas Infrastructure: Issues and Approaches", Ref. C12-GWG-87-03a, 3 December 2012, http://www.energy-regulators.eu/portal/page/portal/EER_HOME/EER_PUBLICATIONS/CEER_PAPERS/Gas/Tab1/C12-GWG-87-03a_Mkt-Based%20Investment%20Procedures_EoR_3-Dec-2012.pdf

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- "CEER Vision for a European Gas Target Model. Conclusions Paper", Ref. C11-GWG-82-03, 1 December 2011, http://www.energy-regulators.eu/portal/page/portal/EER_HOME/EER_PUBLICATIONS/CEER_PAPERS/Gas/Tab/C11-GWG-82-03_GTM%20vision_Final.pdf

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- 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, http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2009:211:0036:0054:en:PDF

- Regulation (EU) No 347/2013 of the European Parliament and of the Council of 17 April 2013 on guidelines for trans-European energy infrastructure and repealing Decision No 1364/2006/EC and amending Regulations (EC) No 713/2009, (EC) No 714/2009 and (EC) No 715/2009, http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2013:115:0039:0075:EN:PDF

- Draft Commission Regulation establishing a Network Code on Capacity Allocation Mechanisms in Gas Transmission Systems and supplementing Regulation (EC) No 715/2009, (version published in Comitology Register on 21 May 2013) http://ec.europa.eu/transparency/regcomitology/index.cfm?do=Search.getPDF&ftTcechKkjcFiYG844LCGMa7UWnazQGdiMBzoap7tlW5SVAw47eF02NzJJLXFBE77kGvLzo2Pu5uyjPyPE0HGhn1Yyu8a5hceFqN5ixnqYI=

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EXECUTIVE SUMMARY

The Blueprint on Incremental Capacity (afterwards blueprint) is the result of a central conclusion of the CEER European Gas Target Model[2] of the need to ensure efficient investment in network interconnection capacity to support the completion of the internal market. The regulatory framework should be set such that market demand for new gas transmission capacity is met in a timely manner and on a non-discriminatory basis, while the risks of overinvestment and stranded assets are limited. To this end, this document aims to contribute to the discussion by formulating proposals and approaches that may ultimately form the basis of European principles and procedures for the identification and allocation of incremental capacity.

The Council of European Energy Regulators (CEER) has taken into account the results from the CEER's public consultation on Market-Based Investment Procedures for Gas Infrastructures: Issues and Approaches[3] and also given consideration to the conclusions raised by the consultants commissioned by the Agency for the Cooperation of Energy Regulators (ACER) in the context of the Tariffs Framework Guidelines (FG),[4] where the European Commission has requested that ACER considers formulating principles on incremental capacity.

The proposals comprise rules on when an offer of incremental capacity should be made by gas transmission operators, as well as how to run an economic test and how to allocate capacity to network users who make commitments – be it integrated into the allocation mechanism for existing capacity or under an open season procedure. Further, it suggests that the economic test shall be based on a financial threshold comparing investment costs with the value of user commitments. Finally, cross-border coordination issues and implications for tariff structures are mapped out.

We will hold a public workshop to discuss this blueprint, and in more detail how it could be taken forward, on 3 June 2013 in Brussels. The next phase of the project would be to incorporate the proposals into a legally binding framework as appropriate. This may entail an addition to the Network Code on Capacity Allocation Mechanisms (CAM Network Code) and potentially amendments to other pieces of legislation, such as the Network Code on Transmission Tariff Structures and/or the development of a specific network code on investment. We propose for this task to be carried out by the relevant 3rd Package institutions under ACER's leadership as from 2014.

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[2] "CEER Vision for a European Gas Target Model. Conclusions Paper", Ref. C11-GWG-82-03, 1 December 2011, http://www.energy-regulators.eu/portal/page/portal/EER_HOME/EER_PUBLICATIONS/CEER_PAPERS/Gas/Tab/C11-GWG-82-03_GTM%20vision_Final.pdf

[3] "CEER Evaluation of Responses on the public consultation paper on Market-Based Investment Procedures for Gas Infrastructure: Issues and Approaches", C12-GWG-87-03a, 3 December 2012, http://www.energy-regulators.eu/portal/page/portal/EER_HOME/EER_PUBLICATIONS/CEER_PAPERS/Gas/Tab1/C12-GWG-87-03a_Mkt-Based%20Investment%20Procedures_EoR_3-Dec-2012.pdf

[4] "Report of Frontier Economics prepared for ACER on Impact assessment of policy options on incremental capacity for EU gas transmission", February 2013, http://www.acer.europa.eu/Gas/Framework%20guidelines_and_network%20codes/Documents/Impact%20assessment%20of%20policy%20options%20on%20incremental%20capacity%20for%20EU%20gas%20transmission.pdf

1 Introduction

1.1 Background

The Blueprint on Incremental Capacity[5] is the result of a central conclusion of the CEER European Gas Target Model,[6] which is the necessity to ensure efficient investment in network interconnection capacity to support the completion of the internal market. The regulatory framework should be set such that market demand for new capacity is met in a timely manner and on a non-discriminatory basis, while the risks of overinvestment and stranded assets are limited.

The objective of market-driven investment procedures is to allow for efficient investment, by which network users are invited to make binding commitments to purchase capacity on a long-term basis. The collection of binding commitments aims at confirming the market's need for capacity and ensuring that the project will yield sufficient revenues to guarantee its financial viability. The investment decision is therefore conditional on the validation of an economic test showing that a reasonable level of cost-coverage is achieved with the long-term bookings.

While important lessons can be drawn from the past experience with market-driven investment procedures, the new regulatory framework deriving from the 3rd Package has also introduced new challenges for investment processes. In this context, the 22nd Madrid Forum (held on 2-3 October 2012) invited CEER to explore the issues related to the provision and allocation of incremental capacity and present a blueprint at the 23rd Madrid Forum held in April 2013. In line with the Forum's request, the key objectives of the following blueprint are therefore to define the cornerstones of an EU-wide approach to identification and allocation of incremental capacity in order to identify in a next step the potentially necessary adjustments to the EU regulatory framework.

When drafting the blueprint, CEER has taken into account the results from CEER's public consultation on Market-Based Investment Procedures for Gas Infrastructures: Issues and Approaches[7] and also given consideration to the conclusions raised by the consultants commissioned by ACER in the context of the Tariffs FG,[8] where the European Commission has requested that ACER considers formulating principles on incremental capacity.

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[5] Parts of this blueprint also apply to new capacity as addressed later in this introduction.

[6] CEER Vision for a European Gas Target Model. Conclusions Paper", Ref. C11- GWG-82-03, 1 December 2011, http://www.energy-regulators.eu/portal/page/portal/EER_HOME/EER_PUBLICATIONS/CEER_PAPERS/Gas/Tab/C11-GWG-82-03_GTM%20vision_Final.pdf

[7] "CEER Evaluation of Responses on the public consultation paper on Market-Based Investment Procedures for Gas Infrastructure: Issues and Approaches", C12-GWG-87-03a, 3 December 2012, http://www.energy-regulators.eu/portal/page/portal/EER_HOME/EER_PUBLICATIONS/CEER_PAPERS/Gas/Tab1/C12-GWG-87-03a_Mkt-Based%20Investment%20Procedures_EoR_3-Dec-2012.pdf

[8] "Report of Frontier Economics prepared for ACER on Impact assessment of policy options on incremental capacity for EU gas transmission", February 2013, http://www.acer.europa.eu/Gas/Framework%20guidelines_and_network%20codes/Documents/Impact%20assessment%20of%20policy%20options%20on%20incremental%20capacity%20for%20EU%20gas%20transmission.pdf

For the purpose of this blueprint, incremental capacity is defined as capacity above technically available capacity at cross-border or cross-market area interconnection points (IPs).[9] The blueprint specifically addresses the situations where physical investment is required.

Incremental capacity is distinct from new capacity, which relates to the creation of an IP between two market areas that were not connected, or to the creation of physical reverse capacity at an existing IP where gas could previously flow in one direction only.

A key objective of the blueprint is to define processes for offering incremental capacity that are coherent with the provisions of the "CAM Network Code" applying to long-term existing capacity.

The blueprint also applies to new capacity, with the exception of the chapter on when to offer incremental capacity and the proposals to integrate the allocation of incremental capacity into the auction for existing long-term capacity.

CEER's proposals for generic steps of investment processes are intended to apply to IPs within the scope of the CAM Network Code, which are cross-border points and points between entry-exit zones. Other points (e.g. to storage, LNG terminals) are not to be directly covered by the blueprint, although some chapters and in particular chapter 5 on the economic test, can be considered relevant for all types of market-based capacity developments.

This document is structured as follows:

- Chapters 1 and 2 are introductory;
- Chapter 3 deals with the question when incremental capacity should be offered (which results in the running of an economic test);
- Chapter 4 deals with the question how the economic test should be run ("economic test phase") and how the capacity should be allocated ("allocation phase"). These two phases occur simultaneously under some of the options;
- Chapter 5 deals with the design of the economic test;
- Chapter 6 focuses on cross-border coordination issues;
- Chapter 7 looks at the implications for the tariff regime; and
- Chapter 8 sets out the way forward and conclusions.

[9] IPs are defined in the CAM Network Code as a physical or virtual point connecting adjacent entry-exit systems or connecting an entry-exit system with an interconnector, in so far as these points are subject to booking procedures by network users.

1.2 Customer Perspective

Infrastructure development is of key importance to secure gas supplies and to facilitate the development of competition to the benefit of end-customers. It also needs to be ensured that capacity developments are properly sized in order to avoid stranded assets as the costs of infrastructure investment are generally passed on to consumers through their energy bills. This socialisation of the investment costs via "transmission tariffs" can potentially lead to price increases for end-customers. The blueprint therefore seeks to ensure sound cost-efficient investments, taking into account the supply and security needs of the energy system and the overall welfare of society as a whole. In this regard, establishing a process to identify if, and how much, natural gas is needed by the market can help to determine what, if any, investments are therefore needed.

2 Rationale for the Blueprint

2.1 Background

Significant experience has been gained in recent years on market-driven procedures. In continental Europe this has mainly taken the form of open seasons, while regular integrated auctions of existing and incremental capacity have been used for the development of entry capacity in Great Britain (GB). In their most widespread version, coordinated open seasons have consisted of a two-step process with a non-binding and binding phase under the supervision of the involved National Regulatory Authorities (NRAs), and the use of priority rules (with reference to the duration of commitments or the date at which the commitments started for instance) or/and the application of pro-rata in case there was excess demand for the development step which passed the economic test. In the GB example, there have been offers of incremental capacity at all entry points every year using integrated auctions. These auctions work with price increments associated with potential incremental quantity of capacity and the corresponding investment costs.

2.2 New challenges

Monitoring exercises and the recent public consultation[10] led by CEER have shown that open seasons are considered a well-suited mechanism. However, in some cases, the key principles laid down in the Guidelines of Good Practice on Open Season Procedures (GGPOS) have been neglected in the application, in particular with regards to transparency of the whole process (in particular, on the economic test design and its application) and efforts in terms of cross-border coordination. Although the practice has significantly improved with the most recent open seasons, the overall return on experience calls for further guidance to be given at an EU level and a stricter application of such guidance.

[10] "Market-Based Investment Procedures for Gas Infrastructure: Issues and Approaches – a CEER Public Consultation Paper", Ref. C12-GWG-87-03, 18 June 2012, http://www.energy-regulators.eu/portal/page/portal/EER_HOME/EER_CONSULT/CLOSED%20PUBLIC%20CONSULTATIONS/GAS/Investment%20Procedures%20for%20Gas%20Infrastructure/CD/C12-GWG-87-03_%20Market_based_investment_procedures_final.pdf

In addition, the open season approach has been developed at a time when existing long-term capacity was mainly allocated using open subscription periods with pro-rata or first-come-first served, which implied that capacity was automatically allocated at the regulated tariff. The context is now changing with the coming into force of the CAM Network Code and the introduction of auctions for existing capacity. The main issue raised in this respect is that shippers may pay a congestion premium on existing capacity being uncertain whether the scarcity will be resolved. Thereby they signal scarcity that might or might not be resolved by investment. If the scarcity is resolved, shippers who did not signal the scarcity in the first place may then obtain capacity at no congestion premium.

One key ambition of the blueprint is therefore to explore practical solutions for linking the incremental process with the allocation and pricing of existing capacity, in order to guarantee a level playing field between different types of users without discrimination whether the offered capacity results from existing or new built infrastructure.

In this context, valuable lessons can be drawn from the GB example of integrated auctions. However, this approach has only been proven in a national regulatory framework using the long run marginal cost methodology and only at individual entry points (as opposed to bundled capacity). This allows for the use of cost estimates with a monotonic relationship to incremental capacity volumes, with unit prices rising as incremental capacity increases. For bundled capacity at IPs, particularly in continental network topologies with potentially more meshed systems and a higher number of Transmission System Operators (TSOs), the project permutations and interdependencies are such that applying this approach may be overly complex.

In addition, work on the blueprint is related to the Regulation on guidelines for trans-European energy infrastructure,[11] which sets out a methodology for the identification of projects that are needed to allow the EU to meet its energy and climate objectives by 2020. Different measures are introduced to accelerate the deployment of these projects labelled as Projects of Common Interest (PCIs). In particular, it is foreseen that the regulatory treatment of PCIs could be facilitated by the allocation of costs across borders depending on the benefits provided. The design of market-based investment procedures thus needs to integrate the possibility for cost-sharing agreements and other types of European financial assistance.

2.3 Key principles for market-driven investment processes

CEER gives consideration to the idea that different circumstances may require different processes and this is the reason why different approaches are presented and compared in the following chapters. Nonetheless, CEER also takes the view that key principles can be identified and apply to all types of market-driven investment processes for IPs within the scope of the blueprint:

- Network users should be given clarity when incremental capacity would be offered;

[11] Regulation (EU) No 347/2013 of the European Parliament and of the Council of 17 April 2013 on guidelines for trans-European energy infrastructure and repealing Decision No 1364/2006/EC and amending Regulations (EC) No 713/2009, (EC) No 714/2009 and (EC) No 715/2009, http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2013:115:0039:0075:EN:PDF

- Strong cross-border coordination is needed from TSOs and NRAs to ensure that the project design and lead times are consistent on both sides of the borders and that the terms of sale fit best the market's needs;
- Transparency should be provided to network users with regards to the calculation and efficiency of costs, the economic test design and tariff setting in order for them to make informed bids;
- The introduction of bundling for incremental capacity products requires that a single allocation takes place on the two sides of the IP;
- The offer of capacity at several IPs along a route shall be consistent in so far as it responds to the market's needs;
- Incremental capacity should be offered together with unsold long-term existing capacity for the reason that the same services for the same period will have the same value for network users if acquired at the same time;
- Network users should know in advance what level of commitments would satisfy the economic test;
- Adjacent TSOs and NRAs shall exchange information on the key parameters of the economic test, because naturally the investment on each side needs to be underwritten and may have different sizes and requirements; and
- The allocation rules and tariff framework should be set such that users can make informed bids so that there is no undue discrimination in terms of pricing between users committing to buy incremental capacity and users having acquired existing capacity for the same period via the regular long-term auction.

The following chapters describe how these principles can be translated into concrete guidance for each step of the investment processes.

3 When to offer incremental capacity

To be able to satisfy capacity demand and physical transport needs, investment processes should take place in a timely manner, when such transport needs arise. This would call for a regular market test to be run.

However, carrying out an investment procedure is a resource intensive activity, particularly for TSOs but also for NRAs. Network planning, feasibility assessment, cost estimation and coordination and other tasks are required. Different network enhancements are usually interdependent and the nature of hardware investment is lumpy. In most continental network settings, bundled incremental capacity would be offered at IPs or virtual interconnection points (VIPs) of often highly meshed grids. The number of possible investment project permutations for different levels of incremental capacity at different IPs may quickly become unmanageable in such settings. An offer of incremental capacity requires network planning that integrates all entry and exit points of a system and does not only look at individual IPs. In summary, it may be very complex, costly and therefore not efficient to always calculate and offer many levels of incremental capacity at all IPs regardless of capacity demand.

This means there is a trade-off between the regularity of market testing and the costs involved in this. In order to balance this trade-off and to concentrate on those efficient and economic capacity enhancements, for which there is likely to be adequate market demand, conditions shall be introduced for when an offer of incremental capacity to the market shall be made. CEER recommends the following conditions as minimum requirements. TSOs and NRAs are of course free to go beyond that and provide for a more frequent offer of incremental capacity at more locations.

The rule shall be an offer of incremental capacity and market testing at those IPs/VIPs where one of the following conditions is met:

- The ENTSOG Ten Year Network Development Plan[12] (TYNDP) identifies a physical capacity gap, in the sense that an area is undersupplied in a reasonable peak demand scenario and incremental capacity at the IP in question would be able to close the gap; or a national network development plan identifies a concrete physical transport requirement;

- Long term capacity is sold out in the year when incremental capacity could be offered first and in the three subsequent years (e.g. Y+5 to Y+8).[13] This condition shall not hold when capacity had been shifted away from the IP in question in the course of the last three years due to lack of capacity demand. In the case of several IP between two hubs the requirement refers to the VIP between these hubs, even if the VIP is not yet commercially offered;

- Network users indicate in a non-binding manner to the TSO and NRA their need for and their willingness to underwrite incremental capacity for a sustained number of years additional to existing capacity. This should initiate an incremental process as set out in chapter 4, if such transport need leads to physical constraints. The minimum data required for such an indication to be well-founded are the location, an indication of the amount of capacity required and an indication of the number of years for which a network user considers a binding offer or bid. When specifying their needs, network users shall have the possibility to indicate whether they would be interested in buying incremental capacity at several IPs along a route. Taking into account the timing of scheduled auctions and TYNDP publications, a transparent process would need to be designed, by which network users know during which time window in each year such interest can be expressed and precisely what information needs to be submitted. TSOs should report to NRAs whether or not, and if so what expressions of interest they received.

[12] Article 8(3)(b) of Regulation (EC) No 715/2009 provides that the European Network of Transmission System Operators for Gas (ENTSOG) shall adopt a non-binding Community-wide TYNDP including a European supply adequacy outlook, every two years.

[13] Consideration of available shorter term capacity can also be taken into account.

4 How to offer incremental capacity

In a setting where there is likely to be demand for incremental capacity at an IP/VIP between two connected entry-exit systems ("hubs"), the offer of incremental capacity is to be integrated into the allocation of existing capacity in the CAM Network Code as a preferred option.

An open season procedure may be used as an alternative, providing a flexible approach to more complex projects and routes. Open season procedures should be limited to situations where there is no straight forward hub-to-hub setting and/or project complexities would make the integrated approach impractical.[14] Open seasons are also suitable for new capacity, where there is no pre-existing connection between two hubs, or only a unidirectional connection.

The design principles of these two alternatives shall be as follows:

4.1 Offer of capacity increments together with existing capacity in the CAM Network Code long term allocation; investment decision based on user commitments obtained in allocation

If there is likely to be capacity demand in a hub-to-hub setting, TSOs at the IP (or VIP) between the entry-exit systems gather informal intelligence on potential capacity demand for bundled capacity connecting the hubs. This allows for coordinating cross-border incremental capacity offers, in order to design investment projects that lead to efficient levels of bundled incremental capacity. One or more of such increments are then offered for allocation within the CAM Network Code long term allocation procedure for yearly capacity products (taking place in March according to the current draft auction calendar) and an economic test is applied to the bidding results.

Well in advance of the relevant CAM Network Code long term allocation the TSOs publish the levels of incremental capacity on offer, the principles ruling the economic test and the minimum user commitments needed for an investment decision. Then the allocation and the economic test are conducted as follows.

[14] In situations where there is likely to be capacity demand across more than two hubs (entry-exit systems), an open season procedure, aligned with the products and timing of the CAM Network Code long term allocation, shall be used. In this context, participants in the open season could be given the possibility to make their bids conditional on acquiring capacity at more than one IP and require that the strictest pro rata applied at one IP is also applied to their capacity requests at the other IPs. Hence they would be able to secure the same quantity of capacity along a route. This would not be possible in case user commitments are secured through an auction type process because participants cannot commit at IP A with the certainty that the clearing price at IP B will not exceed their willingness to pay. Another example of complexity could be investment projects for which the first development step already creates a large amount of capacity. In these circumstances, it may be more appropriate to carry out an open season with demand curves, rather than using the CAM auction algorithm, although the use of the CAM algorithm should be considered first. If an open season is used, shippers will be invited to reveal their willingness to pay, even when the volume of capacity on offer is greater than what shippers are requesting, which would contribute to maximising the chances to meet the economic test.

Technical design 1

Under this approach, the CAM Network Code ascending clock algorithm is run until it clears at the level of existing capacity on offer for each yearly product. The results for existing capacity can be immediately published as preliminary allocation outcome. Then, the resulting demand curves for each year (from the year that incremental capacity is first offered) are processed according to the economic test principles (see below) with the parameters published beforehand. This allows an investment decision in turn determines the final capacity volume released and the clearing price that all bidders pay for capacity, regardless of whether the capacity is existing or incremental.

In order to be able to use bids for higher capacity volumes, all bids of users at price steps below the clearing price have to remain binding upon them. For example, a bidder may have dropped out at a certain price step and is not allocated existing capacity (or a lower quantity of existing capacity than demanded at a lower price step). With the bidding ladder being binding in its entirety, this bidder may still be allocated the higher quantity demanded at a lower price step if the economic test for the relevant incremental capacity is passed and the investment decision is taken.

The final investment decision may take some time due to the processing of results and authority approval. Arrangements are likely to differ from one jurisdiction to another in particular because there can be different models to ensure independence of TSOs. As soon as the investment decision is taken, the final capacity allocation and prices are notified to shippers and the aggregate result is published.

This technical design would be compatible with the CAM Network Code, although slight adjustments would be necessary.

A downside is that bidders cannot differentiate willingness to pay according to scarcity expectations, i.e. they cannot adjust their demand in accordance with the quantity of capacity that can be released for each development step. This is addressed next in the technical design 2.

Technical design 2

For each year – from the year that incremental capacity could first be provided – separate, but parallel, offers are made for existing capacity and for each incremental capacity offer plus existing capacity. This means bidders can bid against a number of capacity supply volumes and have the opportunity to apply an individual demand curve dependent on the capacity supply willingness to pay might differ depending on expectations of scarcity). The CAM Network Code ascending clock algorithm is then run for each of these different supplies. Bidders express their demand for existing capacity supply and for each potential incremental capacity supply level in each round. The clearing price and allocation result for the bidding ladder with existing capacity only can be published immediately as a preliminary result.

After clearing of all bidding ladders, the economic test is applied to the respective demand curves (on the economic test see below). The allocation finally clears for the capacity level for which an investment decision is taken – after the economic test and authority approval. All other bidding ladders are discarded.

The opening of different bidding ladders allows for a differentiated minimum auction premium or reference price for incremental capacity offers. This may be desirable when the economic test is unlikely to be passed at the existing capacity tariff level and the ensuing projected revenue streams.

This technical design would be compatible with the CAM Network Code, although slight adjustments to it would be necessary. It allows bidders to differentiate their willingness to pay according to the scarcity expectation. The approach also allows for a differentiated reserve price for each incremental development step.

Recommendation:

CEER's preliminary view is that the second technical design involving parallel bidding ladders has merit and may be relatively better placed to achieve the key principles outlined in chapter 2.3.[15]

4.2 Open season procedures

With the open season options, the idea remains to allocate available existing capacity together with incremental capacity but the difference with the options described above is that user commitment is secured separately from the CAM Network Code auction algorithm.

The intention is to preserve the flexibility associated with open seasons and thus maximise the potential to have a successful process that is compatible with the regime for existing capacity. At the same time, market demand and willingness to pay should be safeguarded as the central determinant for the investment sizing and decision.

We set out three technical designs below of what this could look like.

Technical design 1: Open seasons with pre-commitments and ex-post use of the CAM algorithm

This would consist of organising a "commitment phase" during which shippers would be invited to commit themselves to purchase a certain amount of capacity at the reserve price in the subsequent CAM long-term auction. Should this long-term auction close at a higher price than the reserve price, users would no longer be bound by their commitments and the capacity would be allocated to those higher bidders instead. To make this option work one would need to develop a mechanism to compensate those shippers that have triggered the investment without being allocated capacity for the benefit which their user commitment has provided. For example, such a mechanism could include a payment (i.e. a proportion of the congestion premium paid by the winning bidder).

[15] This technical design is recommended by the ACER study on "Impact Assessment of Policy Options on Incremental Capacity for EU Gas Transmission" (Frontier Economics, 2013), http://www.acer.europa.eu/Gas/Framework%20guidelines_and_network%20codes/Documents/Impact%20assessment%20of%20policy%20options%20on%20incremental%20capacity%20for%20EU%20gas%20transmission.pdf

The economic test would be run for each development step, on the basis of these commitments.

If the economic test is not conclusive for any development step, the TSOs/NRAs could decide to inform users of these preliminary results and offer to reopen a bidding window during which shippers could adjust their commitments upwards, with the view of triggering the investment.

In case the economic test is passed for a development step which creates as much or more capacity than what was requested by users in the open season, the bids are entered as such in the regular CAM long-term auction. The formal allocation takes place after the closure of this auction.

In case the economic test is passed for a development step which creates less capacity than requested by users in the open season, a pro-rata is applied. This would imply that, in the case of scarcity, criterion other than willingness to pay is used, which may be economically inefficient. Once adjusted, the bids are entered in the regular CAM long-term auction and the formal allocation takes place after the closure of this auction.

This technical design is most aligned with the CAM Network Code and ensures that its benefits also apply to incremental capacity. For example, it ensures non-discriminatory allocation according to willingness-to-pay of both incremental and existing capacity. It is flexible with some suitability for conditionality, routes and complex projects.

The main drawback is that those who trigger the increment by providing the initial user commitment may fear to be outbid by other market participants, which may undermine the incentive to provide this commitment in the first place. A mechanism to address this would need to be carefully designed.

Technical design 2: Open seasons with pro-rata

This approach would be very close to the wide-spread version of open seasons: shippers would be invited to make long-term bookings of capacity at the regulated tariff.

In case the economic test is passed for a development step which creates as much or more capacity than requested by users in the open season, the final allocation takes place and the subsequent CAM long-term auction is cancelled, unless there is remaining available long-term capacity after the open season. This option would mean that rules for the open season would need to be more harmonised and legally binding than under the other options to ensure that the benefits from the CAM Network Code are not undermined.

In case the economic test is passed for a development step which creates less capacity than what was requested by users, priority rules (for flat bookings, for instance according to the duration of commitments or the date at which the commitments started) or/and a pro-rata would be applied.

If the economic test is not conclusive for any development step, the TSOs/NRAs could decide to inform users of these preliminary results and offer to reopen a bidding window during which shippers could possibly adjust their capacity bids upwards, with the view of triggering the investment.

If the economic test is not met, no capacity would be allocated and the existing capacity would feed into the regular CAM long-term auction.

One key feature of this option is that the bids are not ranked according to their price in case of over-demand, which makes it possible to deal with conditional bidding, where the shipper's capacity request at one IP is conditional on his obtaining capacity at another IP.

This open season design is the most flexible and is suitable for conditionality of bids, the creation of routes and complex projects.

The main drawback is that it may undermine the CAM Network Code because existing capacity would be withdrawn from the CAM auctions. This could only be avoided by providing detailed legal guidance that ensures the benefits of CAM are made legally binding for open seasons. Also, in the case of scarcity, allocation according to criteria other than willingness to pay would take place which may be economically inefficient.

Technical design 3: Open seasons with demand curves

Under this open season variant, shippers would be asked to submit a demand curve, consisting of capacity requests against pre-defined price steps starting with the current regulated tariff.

With the CAM algorithm, the auction clears when volume capacity bids are equal to or lower than the capacity offered, which implies that participants cannot indicate whether they would be ready to pay a higher price in situations where there is no scarcity. Conversely, the use of demand curves would serve to reveal shippers' willingness to pay, even if the capacity on offer is higher than that requested by shippers. In this context, the opportunity to trigger the investment would be maximised because the revenues yielded by shippers' bookings could potentially be higher. This procedure would thus be relevant, for example, if the first development step already creates a large amount of capacity.

After the closure of the procedure, the economic test would be run for each development step according to each pre-defined price. In the event that two or more scenarios could equally satisfy the test, the scenarios that create the more capacity would be selected.

Among these scenarios, the one that maximises the revenues generated by commitments would be validated. Should the volume of capacity requested by shippers under this scenario be higher than the capacity on offer, a pro-rata would be applied.

If the economic test is not conclusive for any development step, the TSOs/NRAs could decide to inform users of these preliminary results and offer to reopen a bidding window during which shippers could possibly adjust their bidding curves upwards, with the view of triggering the investment.

If the economic test is passed, capacity is allocated and the subsequent CAM long-term auction is cancelled, unless there is remaining capacity available after the open season. This option would mean that rules for the open seasons would need to be more harmonised and legally binding than under the other options to ensure the benefits from the CAM Network Code are not undermined. Conversely, if the test is not met, no capacity would be allocated and the existing capacity would feed into the regular CAM long-term auction.

This technical design is flexible and suitable for conditionality, the creation of routes and complex projects. It maximises the chances to meet the investment trigger by testing shippers' willingness to pay even in situations where there is no scarcity for a given development step.

The drawbacks of this approach include the fact that bidders may be reluctant to provide demand curves. Furthermore, it may undermine the CAM Network Code because existing capacity would be withdrawn from the CAM auctions. This could only be avoided by providing detailed legal guidance that ensures the benefits of CAM are made legally binding for open seasons.

Recommendation:

At this stage, CEER considers that technical design 3 "Open seasons with demand curves" has merit and may be better placed to meet the objectives to reflect market demand and willingness to pay. Nonetheless, CEER considers that technical design 2 "Open seasons with pro-rata" would be the easiest way to accommodate conditionality of bids for capacity along a route. Further reflection is recommended on these approaches.

5 Design Principles of the Economic Test

5.1 Calculation principles

In past open seasons, often specific levels of long term capacity bookings were required for an investment decision (e.g. 80% capacity to be booked for 15 years). However, economically it is better to take into account cost assumptions; and from a non-discrimination perspective, willingness to pay is a better allocation principle over preference for long flat bookings. Therefore, it is preferable to base an investment decision on a financial measure, rather than a booking level. Such a measure looks at whether the value of expected future payments from shipper commitments covers an adequate proportion of projected infrastructure cost for the incremental capacity. This corresponds to standard investment appraisal accounting procedures and takes into account network users' willingness to pay.

Therefore CEER recommends that an economic test according to the following principles is applied. The economic test is passed, if:

$$NPV \geq f * DIC$$

Where:

NPV is the Net Present Value of expected shipper payments, which is the estimated projected tariff times the capacity volume commitment, for each year where such commitment is obtained, discounted with the cost of capital to its net present value.

DIC is the Deemed Investment Cost to provide the level of incremental/new capacity, which is offered for underwriting and for which commitments are obtained. More precisely, the DIC refers to the potential increase of the TSOs' allowed revenue, which is due to the investment, during the economic life of the new asset. In case part of the DIC can be attributable to other areas than the provision of incremental/new capacity at the specific IP, then this positive externality should be reflected by a decrease in parameter *f*.

f is the fraction of deemed investment costs that needs to be underwritten by user commitments. This takes into account that the time horizon shippers are likely to enter into such commitments is limited and assumes that the level of commitments of earlier years indicates that an investment is useful and used in the remainder of the asset life. Positive externalities of a project may be socialised by reducing the fraction, which means that the missing proportion of costs is borne by all network users and eventually consumers in the area where the regulated asset base is remunerated.

5.2 Parameters

To run an economic test, parameters shall be determined and published before unilateral user commitments are taken. This allows bidders to adjust their bidding behaviour in order to enable the provision of incremental capacity. Important parameters for an incremental capacity process are the deemed investment cost, the discount rate (this should be the required capital remuneration in the given regulatory system) and the threshold fraction *f* to pass the economic test. A further important input parameter, which differs across regulatory regimes, is the depreciation period.

For the projection of specific tariffs for an incremental capacity offer, which are needed to calculate the cash flow assumptions, the framework of the respective regulatory systems will have to be taken into account. Factors such as booking levels and future market area size changes have a major bearing on specific unit tariffs.

For the deemed investment cost input parameter, different degrees of certainty of investment cost projection will be encountered in Europe, for instance dependent on project complexity. Notwithstanding this, a cost assumption relative to each specific level of incremental capacity offer is required in any case. Uncertainties can then be reflected in the setting of the economic test threshold fraction *f.* Another factor to be taken into account in setting *f* is whether a proportion of capacity is set aside for short term allocation.

5.3 Single economic test

Incremental capacity is offered as bundled capacity at an IP (VIP) and a single economic test is applied. This single test incorporates the entire requirement for user commitments underwriting the investments, which are necessary to provide each of the capacity elements in the bundled product. In other words, the single economic test would be passed if the sum of the NPV of shippers' payments for their exit and entry capacities is at least equal to the sum of the fractions of DIC defined separately for each of the two adjacent systems.

User commitment requirements on both sides of an IP will vary, due to the different framework conditions. Therefore, situations are to be expected where for one capacity element in a bundle, the investment requirements would be met, while for the integrated single economic test, the threshold is not passed. For example, where existing unbundled capacity is available on one side of an IP but major investments are required on the other side. The threshold is passed on one side without user commitments because the threshold is zero (as nothing needs to be built). On the other side of the IP, a threshold would be defined in a normal procedure, according to the above considerations.

Another possible outcome is that the single economic test is passed, while the NPV of shippers' payments on one side of the IP is lower than the fraction of DIC defined for this same side of the IP. In this situation, several possibilities of bilateral agreements between TSOs and NRAs are conceivable. These include modifications to the split of the committed revenue from the reserve prices, lump sum contributions to an investment, or bookings by a TSO in another system. Such procedures will have to be tailored to the investment at hand and will have to be agreed on an IP level.

In case a TSO/NRA considers the parameter requirements of the adjacent TSO/NRA as unjustified, bilateral negotiations can be conducted. These discussions will be particularly important, since the parameter requirements necessarily have an impact on the potential need for bilateral agreements to enable passing the economic test.

For an example of how a single economic test can be designed, please refer to Annex 3.

6 Cross-border coordination issues

The creation of capacity at IPs between market areas usually requires investment decisions by two or more TSOs, potentially in different Member States. These investment decisions will cover the development of the interconnection itself but also the corresponding reinforcements of the core network, to allow dispatching the additional gas flows towards consumers. Therefore, coordination on the technical, procedural and economic aspects of the project is fundamental for the success of the incremental process.

On technical aspects, coordination has to start early on. TSOs have to agree on the design of projects and, in particular on the different steps of capacity development and on the definition of consistent lead times. As a general principle, unless the services offered on the two sides are not the same, coordinated market-based investment procedures are driven by "the short side" of the project. This rule is exacerbated with the requirement to only offer bundled incremental products, as foreseen in the latest version of the CAM Network Code.

In addition, the introduction of bundled products requires full coordination on the timetables and processes. This would include compatible and/or coordinated information provision, underpinned by a precise definition of the duties and responsibilities of each TSO. A unique point of contact (not a separate organisation) should be set up to receive the capacity requests from shippers and the results of the allocation process should be jointly published by the two TSOs.

On economic aspects, the need for coordination applies to both adjacent TSOs and NRAs, who would need to share information on the following issues:

- How the investment costs were calculated;
- How the risks of delays from one of the investors are dealt with in the regulatory framework and how the liability regimes are designed;
- How the corresponding tariffs have been set;
- What is the fraction of deemed investment costs that need to be underwritten by user commitments;

- What is the magnitude of external benefits and, if appropriate, how it has been taken into account in the design of the incremental process. In order to structure this discussion, NRAs may assess the size of the externalities for their jurisdiction, according to the following non-exhaustive list of indicators:[16]

TYPE OF EXTERNALITY	HIGH *If true for at least one market area:*	LOW *If true for both market areas:*
Security of supply from project	• High dependence on one supply source or route different from the IP where IC is offered • Market integration with other market areas is low • Low storage capacity • High share of customers with low short-run demand elasticity (e.g. households) • IC is relatively large compared to peak demand	• Diversified supply sources and routes • Physical integration with other market areas is high • Gas storages exist to compensate short-term supply disruptions • Demand is flexible and can be reduced without high costs • IC is relatively small compared with peak demand
Increased competition from project	• High concentration of supply in the wholesale market • Constraints exist between other market areas • Low or no integration with a market area with liquid gas wholesale market	• Competitive wholesale market without a dominant supplier • Liquid gas trading takes place at a trading hub where prices are well integrated with prices in other market areas

Source: Frontier

In their assessment, TSOs/NRAs may also refer to the future "cost-benefit analysis methodology" that ENTSOG is to develop according to the EC's proposal for a Regulation on guidelines for trans-European energy infrastructure (TEN-E Regulation). As explained in ENTSOG's Work Programme for 2013,[17] it intends to elaborate an "energy system-wide analysis methodology" for the assessment of the global impact on the gas system of the aggregate of TYNDP projects as well as a "project-specific analysis methodology for the assessment of individual projects", in connection with the PCIs selection process.

[16] Indicators proposed by Frontier Economics in the final report ¨Impact Assessment of Policy Options on Incremental Capacity for EU Gas Transmission¨, (page 60 of the final report), http://www.acer.europa.eu/Gas/Framework%20guidelines_and_network%20codes/Documents/Impact%20assessment%20of%20policy%20options%20on%20incremental%20capacity%20for%20EU%20gas%20transmission.pdf

[17] "ENTSOG Annual Work Programme 2013", http://www.entsog.eu/public/uploads/files/publications/AWP%20&%20Annual%20Report/2013/AWP_130219_AWP2013_FINAL_PUBLISHED.pdf

Finally, if TSOs/NRAs consider that costs and benefits of the investment project are split disproportionally between the adjacent systems, i.e. the distribution of the NPV is not sufficiently consistent with the distribution of the DICs, they may decide to conclude a cost-sharing agreement as it is foreseen in the TEN-E Regulation.

7 Implications for rules on Transmission Tariff Structures

The European Commission requested that the issue of incremental capacity be considered in the context of the Framework Guidelines on Transmission Tariff Structures, which will be published by ACER in 2013. ENTSOG will develop a Network Code by 2014. The blueprint on incremental capacity should – as far as possible – be consistent with ACER's Framework Guidelines on Transmission Tariff Structures. The starting point is that the principles from ACER's Framework Guidelines apply to incremental capacity, unless a difference can be justified. This chapter examines what further work needs to be done to make sure the interaction works between an incremental capacity blueprint and the Framework Guidelines on Transmission Tariff Structures.

7.1 Socialisation of costs

As set out in chapter 5, the economic test is passed when the NPV of committed shipper payments is greater or equal to the proportion (*f*) of deemed investment costs for the incremental capacity. This means that the remaining proportion of these costs (1-*f*) corresponds to the maximum acceptable level of costs socialisation. *f* can be set below 100%, in order to reflect that part of the capacity will be set aside for short-term bookings, that capacity is likely to be used after the commitment period, and that the investment can be justified through other benefits, for example related to security of supply or market development. This means that the risk of covering the proportion of cost 1-*f* will be socialized across all network users and all network points.

7.2 Issues relating to the determination of the reference price for incremental capacity

The draft Framework Guidelines on Transmission Tariff Structures provides that the reserve price for auctions of annual products would be the reference price. The standard approach for setting the payable price in the FG consists of the reference price at the time of use of the capacity and any auction premium as a result of the auction. However, NRAs may decide to use a different approach to setting payable price for incremental capacity where this is transparent, non-discriminatory and in line with the Internal Energy Market network code development process. This chapter deals with the question of how the reference price should be determined for network users that participate in the incremental capacity process, potentially taking into account the economic test constraints.

The starting point is that the current reference price would also apply to incremental capacity. In order for the design to function, the decision on how to set the components of the reference price on both sides of the IP concerned could be taken independently. Participants of the incremental process would know the level of user commitment at which the investment could be triggered, taking into account the "*f*" parameter in the economic test. Therefore, bidding at the reference price may be sufficient to ensure the capacity is released. However, it could also happen that the overall amount of potential user commitment is insufficient.[18]

In this situation, participants would need to bid above the reference price to ensure the economic test is passed and incremental capacity is released. In other words, they would have to commit to paying a premium above the reference price for the duration of their booking.

Relying on the premia to ensure that incremental capacity can be released would allow for the simplicity of having only one single reference price. It would protect those users that have subscribed capacity before the investment was triggered from a (potentially unpredictable) tariff increase at the concerned IP and from the need to contribute to the passing of the economic test. Nonetheless, should the reference price be insufficient to trigger the release of incremental capacity, then shippers may be reluctant to commit to paying a premium under the knowledge that that capacity will be offered at the reference price without the premium afterwards.

In addition, the CAM Network Code auction algorithm was not designed to allow network users to indicate a higher willingness to pay in the absence of over demand. It may be that, in a scenario where the reference price is insufficient to pass the economic test, the only way for shippers to indicate their willingness to pay (and commit to paying a premium) would be to book a greater proportion of the proposed incremental capacity than they consider they need at the time the auction takes place which may not be a good outcome. This could be avoided either by amending the CAM Network Code or by adjusting the tariff for incremental capacity appropriately.

Amending the CAM Network Code would aim at a change to the auction algorithm to allow for additional auction rounds even where there is no over demand at the existing price level but where the economic test is not passed. This would be a significant change to the CAM arrangements which have only recently been finalised so a less onerous approach may be to address this issue through tariff rules.

Addressing this through tariff adjustment would require TSOs and/or NRAs to calculate the minimum payment per unit of capacity in order to pass the economic test. To this end, the expected NPV of shippers' payments is calculated ex ante on the basis of:

- The current reference price;
- A realistic assumption on the amount of capacity that will be subscribed during the incremental process. The strictest assumption would relate to a situation where the long-term capacity offered is fully booked over the commitment period but this

[18] For example, where the NPV needed to meet the economic test would require a greater price than users can bid for under the auction algorithm, and/or a greater volume than users require.

is improbable considering that the CAM Network Code requires that yearly products are allocated independently, thus allowing for profiled bookings.

A question arises when the conditions mentioned above lead to an expected NPV of shippers' payments which is lower than the revenue target defined in the economic test as (*f**DIC). In this context, the tariff at the concerned IP could be amended as follows:

Option 1: increase the reference price at the concerned IP for all users. This would mean that the tariff increase applies to those committing to buy incremental capacity and those having acquired existing capacity for use in that year via earlier long-term auctions. This option has the advantage of simplicity, to the extent that a yearly product for a given gas year would be applied the same reference price no matter when the product has been acquired. Nonetheless, it implies that users having subscribed capacity at the concerned IP before the investment was triggered would face a (potentially unpredictable) tariff increase at this IP. Despite having secured long-term capacity earlier on potentially through paying an auction premium, they would now have to contribute to the passing of the economic test and the financing of the incremental capacity, to a greater extent than all the other users of the network. This may discourage users from buying existing long-term capacity in the first place. In addition, users would know that if they do not buy existing long-term capacity, they may at a later stage be able to buy incremental capacity (if it became available) at the same reference price which may distort incentives.

Option 2: increase the reference price at the concerned IP while exempting users who subscribed capacity before the release of incremental capacity. The benefit of this option is that users of existing capacity would not face a (potentially unpredictable) tariff increase at the concerned IP and have to contribute to the financing of the incremental capacity, to a wider extent than all the other users of the network. The disadvantage is the complexity of a yearly product for a given gas year being subject to two different reference prices depending on when it was acquired. This situation could last up to 14 years taking into account the timeframe set out in the CAM Network Code for the allocation of existing long-term capacity.

Option 3: introduce a minimum premium for the incremental capacity. This would mean that when the economic test is run the auction for incremental capacity would start at a level above the reference price, so that the successful bidders would have committed to paying a minimum premium. Given that the economic test was passed by those network users that participated in the incremental capacity process, the minimum premium would not need to be applied in any future auctions. However, knowing that capacity will be offered at the reference price without the premium afterwards, network users may be discouraged from committing during the incremental process. The benefit of this option is that it allows users of incremental capacity to indicate their willingness to pay beyond the reference price whilst protecting owners of existing capacity from the cost of passing the economic test.

Annex 3 provides an example of these three options.

Clearly these options are more effective the better the TSOs' and/or NRAs' estimates are. It could be foreseen that the increase of the reference price or the minimum premium are presented as a "maximum", implying that the minimum premium or reference price would be lowered in case the TSOs and/or NRAs underestimated the amount of capacity to be subscribed.

Likewise, TSOs/NRAs should consider decreasing the reference price at the concerned IP for all users, in case it is established that the investment project generates economies of scale that would result in lower average costs at the IP.

7.3 Issues relating to potential undue discrimination between users of existing and incremental capacity

As mentioned in the rationale for the blueprint, one key issue relates to the fact that shippers participating in the previous long-term auctions for existing capacity may pay a congestion premium, being uncertain whether the scarcity will be resolved. If the scarcity is resolved, shippers that did not signal the scarcity in the first place may then obtain capacity at a lower price.

To the extent that users have the necessary information this can be addressed by putting in place a regime for incremental capacity which gives all network users certainty about how to trigger an incremental capacity process, meaning that those that committed to the premium took a conscious decision not to trigger incremental capacity (and to pay a premium instead).

There is a question whether in the interim and/or as a safeguard, it could be considered that the payable price for those that bought capacity at a premium before the incremental capacity regime is introduced could be reduced to the level of the price payable in the release of incremental capacity for the same gas year.

There is another question whether, beyond the interim, the increase of the reference price could be balanced with an equal decrease of the potential premium paid by users having subscribed long-term capacity before the incremental process was launched. Such a measure may be relevant to counterbalance the effect of option 1 listed above (where reference prices for all users at the IP are adjusted).

However, reducing the premium and/or adjusting the structure of the payable price would create additional levels of complexity and would potentially require an amendment of the subscription contracts for which there may be legal obstacles in some Member States. It may also distort incentives in the auctions of existing capacity since the participants would factor into their bids that the payable price may be adjusted downwards if incremental capacity is offered in the future.

7.4 Issues relating to the uncertainty about the evolution of the payable price

The draft Framework Guidelines on Transmission Tariff Structures propose for the payable price to consist of the floating reference price and an auction premium. This option was supported by the majority of stakeholders who responded to ACER's public consultation on the draft Framework Guidelines organised in autumn 2012.[19] This means that network users do not know the future price of the capacity when they participate in the auction. Whilst the downsides outweighed the upsides during the Framework Guidelines development process for existing capacity, the question is whether this conclusion would be different for incremental capacity.

As highlighted by several stakeholders during ACER's public consultation process on the draft FG, the uncertainty resulting from the use of a floating reference price can act as disincentive for network users to commit to an investment on a long-term basis. The disincentive would be even higher in the case tariff multipliers equal or lower than one are applied to short term capacity products.

One option to encourage shippers to underwrite the investment would be to introduce a specific price treatment for those users by applying a fixed or indexed payable price to their commitments. Nonetheless, it raises a question of potential undue discrimination since holders of incremental capacity would face a different payable price than holders of existing capacity.

Another option would be an amendment to the draft FG for all payable prices to be fixed or indexed, which would solve the issues mentioned above. And this would mean that capacity products for the same time horizon may have different prices, depending on when the products were acquired. Nonetheless, it would create stronger requirement for a different revenue recovery mechanism.

8 Conclusions and the way forward

We will hold a public workshop to discuss this blueprint, and in more detail how it could be taken forward, on 3 June 2013 in Brussels.

The next phase of the project would be to incorporate the proposals into a legally binding framework as appropriate. This may entail an addition to the CAM Network Code and potentially amendments to other pieces of legislation, such as the Network Code on Transmission Tariff Structures and/or the development of a specific network code on investment. We propose for this task to be carried out by the relevant 3rd Package institutions under ACER's leadership as from 2014.

[19] "ACER Public Consultation on the Draft Framework Guidelines on Harmonised transmission tariff structures (for the Draft FG of 16 April 2013) – Evaluation of responses"
http://www.acer.europa.eu/Gas/Framework%20guidelines_and_network%20codes/Documents/EoT_Draft%20Tariff%20FG_16_04_2013_for%20publication_TQ_clean.pdf

Annex 1 – CEER

The Council of European Energy Regulators (CEER) is the voice of Europe's national regulators of electricity and gas at EU and international level. Through CEER, a not-for-profit association, the national regulators cooperate and exchange best practice. A key objective of CEER is to facilitate the creation of a single, competitive, efficient and sustainable EU internal energy market that works in the public interest.

CEER works closely with (and supports) the Agency for the Cooperation of Energy Regulators (ACER). ACER, which has its seat in Ljubljana, is an EU Agency with its own staff and resources. CEER, based in Brussels, deals with many complementary (and not overlapping) issues to ACER's work such as international issues, smart grids, sustainability and customer issues.

The work of CEER is structured according to a number of working groups and task forces, composed of staff members of the national energy regulatory authorities, and supported by the CEER Secretariat.

This report was prepared by the Gas Infrastructure Task Force of CEER's Gas Working Group.

Annex 2 – List of abbreviations

Term	Definition
ACER	Agency for the Coordination of Energy Regulators
CAM	Capacity Allocation Mechanisms
CEER	Council of European Energy Regulators
DIC	Deemed Investment Costs
EC	European Commission
ENTSOG	European Network of Transmission System Operators for Gas
GB	Great Britain
f	Fraction
FG	Framework Guidelines
GGPOS	Guidelines of Good Practice on Open Seasons Procedures
IP	Interconnection Point
LNG	Liquefied Natural Gas
NPV	Net Present Value
NRA	National Regulatory Authority
PCI	Project of Common Interest
RP	Reference Price
Tariff FG	Framework Guidelines on Transmission Tariff Structures
TSO	Transmission System Operator
TYNDP	Ten Year Network Development Plan
VIP	Virtual Interconnection Point

Annex 3 – Numerical example of the potential interaction between the economic test and the payable price for incremental capacity

The purpose of this annex is to facilitate the understanding of chapter 5 on the economic test and chapter 7.2 on the determination of the reference price for incremental capacity. The annex describes an example of a simplified investment project and explains how the single economic test would be designed and what would be the potential implications in terms of tariffs setting.

In our example, an investment project is being considered for an IP between two adjacent entry-exit systems (A and B). The current capacity from system A to system B is 150GWh/d and could reach 200GWh/d if the investment is triggered. This 50GWh/d of additional of capacity would be offered as bundled yearly products over a time horizon of 15 years.

Table 1: Economic test parameters defined for each side of the IP according to the methodologies in place in system A and B

	System A	System B
Yearly Deemed Investment Costs (DIC)[20]	5M€/y	3M€/y
Depreciation period for the new assets	50y	50y
Fraction of DIC to be underwritten by long-term user commitments (*f*)	60%	50%
Current reference price (RP)	80€/MWh/d/y	46€/MWh/d/y
Discount rate used for calculating the NPV of shippers' payments	6.25%	7%

These individual parameters would then be combined in a single integrated economic test, which would ensure that the requirements are met on both sides of the IP:

$$\sum_{i=0}^{14} \frac{80 * (bookings\ A \rightarrow B)}{(1+0.0625)^i} + \frac{46 * (bookings\ A \rightarrow B)}{(1+0.07)^i} \geq \frac{(0.6*5)+(0.5*3)}{5+3} \times \sum_{i=0}^{49} \frac{5}{(1+0.0625)^i} + \frac{3}{(1+0.07)^i}$$

The fraction "f" corresponds to the weighted average of the two *f* parameters defined for each side of the IP (60%; 50%).

The overall investment requirement, i.e. the fraction of the total deemed investment costs to be underwritten by shippers' payments, would then amount to:

$$\sum_{i=0}^{49} \frac{0.6*5}{(1+0.0625)^i} + \sum_{i=0}^{49} \frac{0.5*3}{(1+0.07)^i} = 48.54 + 22.15 = 70.69M€$$

[20] For the sake of simplicity, DIC is considered constant over the years in our example. The effect of depreciation is not reflected.

In order to verify that the reference prices are sufficient to potentially trigger the release of incremental capacity, the expected NPV of shippers' payments is calculated *ex ante* on the basis of a realistic assumption on the amount of capacity that would be subscribed during the incremental process. In our example, we are taking the most optimistic assumption and assume that the 50GWh/d of capacity offered would be subscribed during the 15 years.

The expected NPV of shippers' payments would then amount to:

$$\sum_{i=0}^{14} \frac{80 \times 50\,000}{(1+0.0625)^i} + \sum_{i=0}^{14} \frac{46 \times 50\,000}{(1+0.07)^i} = 40.61 + 22.41 = 63.02M€$$

The result of this calculation indicates that the single economic test cannot be passed if all capacity offered is booked by shippers at the current reference price for the bundled product.

In this context, the NRAs/TSOs may consider increasing the payable price in order to potentially increase the NPV of shippers' payments and thus facilitate the achievement of the investment threshold.

In our example, the expected NPV of shippers' payments for the entry capacity to system B (22.41M€) is already slightly higher than the investment requirements on this side of the IP (22.15M€). However, the expected NPV of shippers' payments for the exit capacity from system A (40.61M€) is lower than the investment requirement on this side of the IP (48.54M€). Therefore, the payable price would preferably need to be increased in system A, in order to avoid the need for a transfer of revenues between the two systems. This increase should generate around 8M€ of additional revenues from exit capacity bookings so the investment requirement in system A can be actually be met.

This increase of the payable price could be implemented in three different ways as defined in chapter 7.2 of the blueprint:

- One option is to set a new reference price while exempting users who subscribed capacity before the release of incremental capacity. In our example, the reference price for exit capacity from system A would need to be increased up to 96€/MWh/d/y (leading to a new reference price of 144€/MWh/d/y for the bundled product). Hence, the expected NPV of shippers' payments for the incremental exit capacity from system A would be of 48.73M€ and the single economic test would be passed.

- If the decision is taken not to exempt users who subscribed capacity before the release of incremental, then the increase of the reference price would be lower because the additional revenues derived from the 150GWh/d capacity already booked would feed into the economic test. Setting the new reference price for the exit capacity from system A at 84€/MWh/d/yr (130€/MWh/d/y for the bundled product) would enable passing the single economic test. The previous bookings (150GWh/d) would generate 6.09M€ of additional revenues and the incremental capacity bookings (50GWh/d) would generate 42.64M€, amounting to a total NPV for this side of the IP of 48.73M€.

- A third option is to introduce a minimum premium for the incremental capacity. This option implies that the auction for incremental capacity would start at a level above the reference price, in our example at 144€/MWh/d/y for the bundled product, thus reflecting the 16€/MWh/d/y minimum premium. The minimum premium would not need to be applied in any future auctions for yearly products, meaning that the first bidding price would be 126€/MWh/d/y again.