# GAS TRANSMISSION TARIFFS IN BNETZA'S DRAFT DETERMINATION "REGENT"

## Economic assessment on behalf of Fluxys TENP, GASCADE, GRTGaz Deutschland and Open Grid Europe

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# Inhalt




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# Objective: Constructive contribution to the debate on TSO network tariffs

**Context**

- REGENT draft of May 2018 leads to market-wide uniform postage stamp tariff
- This induces the fear that, in the future, cross-border gas transport through Germany will become more expensive without this being cost-reflective, and that bookings could decline
- Frontier Economics tasked by 4 TSOs to analyse the economic effects

**Report scope**

- Economic assessment of the REGENT draft determination
- Restriction of the analysis to the market-wide uniform setting of tariffs affecting all TSOs:
  - No overarching analysis taking into consideration separate tariff setting pursuant to NC TAR art. 10 (2)
  - Consideration of possible adjustments within the framework of market-wide uniform tariff setting

**Objective**

- **Constructive contribution to the debate on the REGENT decision within the framework of market-wide uniform postage stamp tariffs**

# Uniform postage stamp tariff as per BNetzA REGENT draft

**Uniform postage stamp without further tariff differentiation**

- Determination of the TSO tariffs from 1 January 2020 based on the new reference price methodology of a **uniform postage stamp tariff for each market area**
- **The greatest possible omission of tariff differentiation** in connection with the supply tasks behind the respective bookings:
  - E.g. no differentiation between cross-border transport and regional distribution
  - The only exception is the connection of gas storage

**No distance-related approach**

- Deviation from the reference price methodology of **capacity-weighted distance** which NC TAR envisages as the counterfactual method for comparison
  - *"Where the proposed reference price methodology is other than the capacity weighted distance reference price methodology, the latter should serve as a counterfactual for comparison with the proposed reference price methodology"* (NC TAR no. 3, s. 5)

**More specific form possible in the German context**

- **BNetzA with large headroom in selecting the reference price method**
  - Theoretically, a separate application of a reference price method per TSO is possible (NC TAR in article 10 para. 2)
- BnetzA explains and justifies the selection of the uniform postage stamp tariff model in REGENT exclusively in comparison with capacity-weighted, distance-dependent tariffs
  - **Lack of discussion of the advantages and disadvantages of various postage stamp tariff specifications with different degrees of differentiation**

# Network tariffs must take economic incentives into account

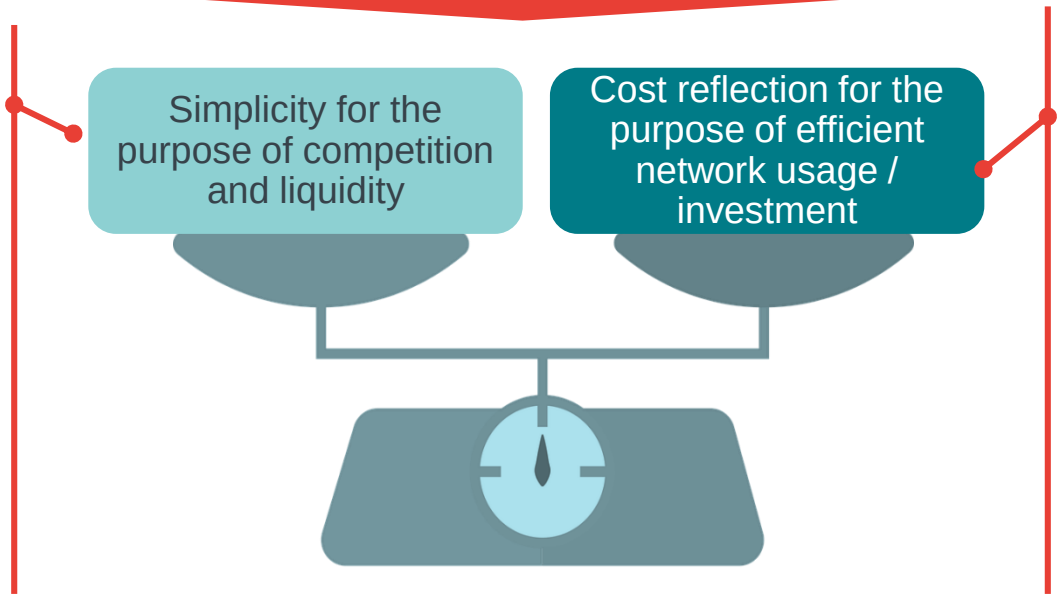
**Network tariff system as coordination mechanism**

- Network tariff system is the central coordination mechanism in vertically disaggregated gas markets
- Through this, network users and operators are given network use and investment signals

**Conflict of aims**

- Complicated and intransparent tariff system as potential obstacle to competition and barrier for market entry

➔ **Uniform postage stamp tariff** as simple tariff system **facilitates competition**




- Each network user takes into account the costs actually related with their capacity booking in the gas system

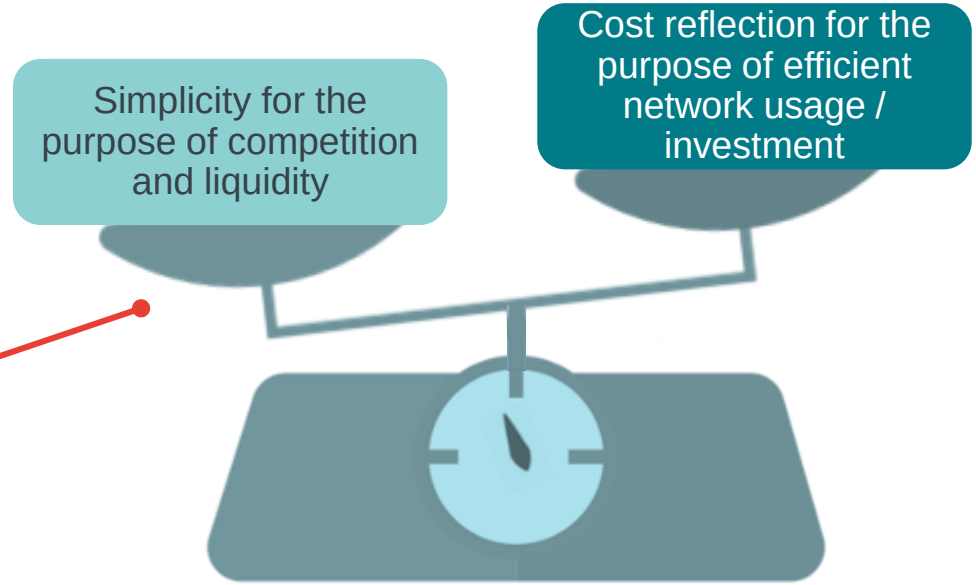
➔ **Uniform postage stamp tariff without reflection of costs reduces incentive to minimise costs of network usage and expansion**

**NC TAR demands:**

- **Network tariffs to be cost-reflective** (e.g. Art. 7 s. 2 lit. 9b)
- **Prevention of undue cross-subsidisation** (Art. 7 s. 2 lit. c)
- **No distortion of cross-border trade** (Art. 7 s. 2 lit. e).

# BNetzA proposal in REGENT abstracts (too) strongly from cost-reflecting network tariffs

Bundesnetzagentur




- **BNetzA proposal abstracts strongly from cost-reflectivity**, with the consequence of
  - possible disincentives for network users with regard to network-beneficial behaviour and
  - potentially negative economic effects, in its level depending on the
    - extent of deviation of network tariffs from cost-reflective tariffs; and
    - price sensitivity of network users

REGENT postage stamp does not reflect the heterogeneity of TSO supply tasks
→ **Section 4**

REGENT postage stamp makes cross-border gas transport more expensive and has quantity risk
→ **Section 5**

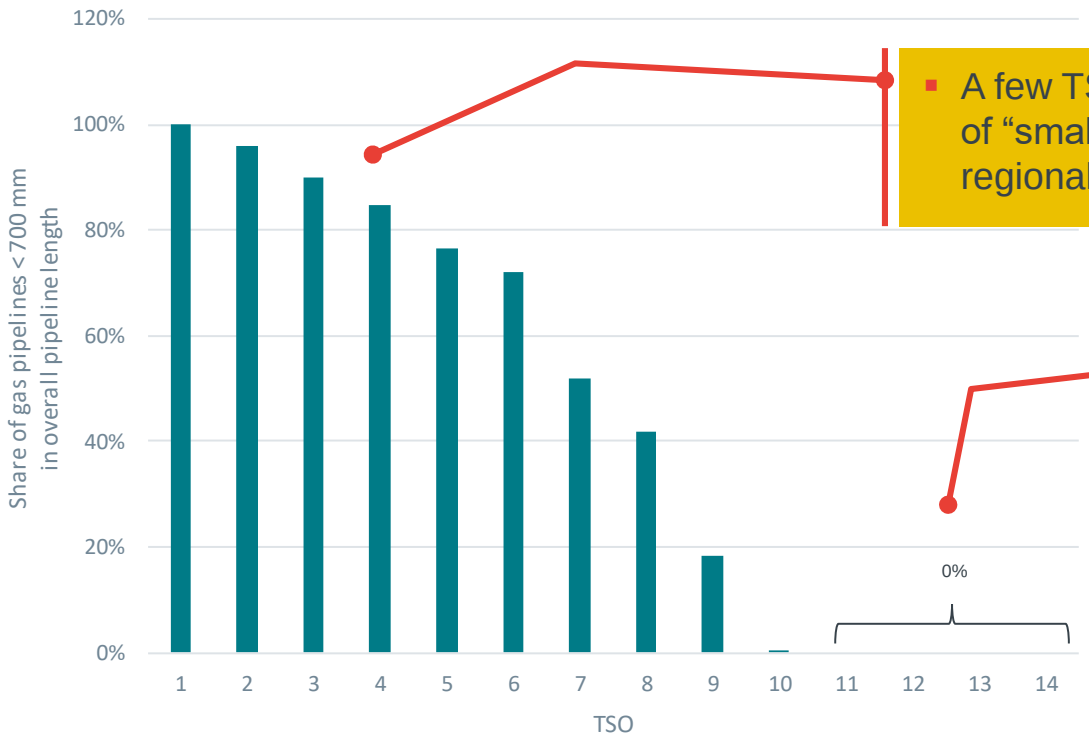
Cost-reflective tariffs are also possible within a market-wide postage stamp model
→ **Section 6**

# German gas grid with heterogeneous tasks and complex network structures

**Unique gas grid structure in Europe**

- 15 TSOs with, in some cases, substantially **different supply tasks**
- German situation explained historically:
  - Historically stronger vertical subdivision of network operators to gas transport levels I (“Ferngasstufe I”) and II (“Ferngasstufe II”) as well as regional and distribution networks
  - These were transferred to a two-part system of TSOs and DSOs to comply with EU legislation, which led to demarcation problems and very heterogenous TSO landscape
- Highly complex gas grid system (still) with 2 market areas (see e.g. REGENT in point 47)

**Structural differences between TSOs**




- A few TSOs with very large share of “smaller” gas grid pipelines for regional distribution

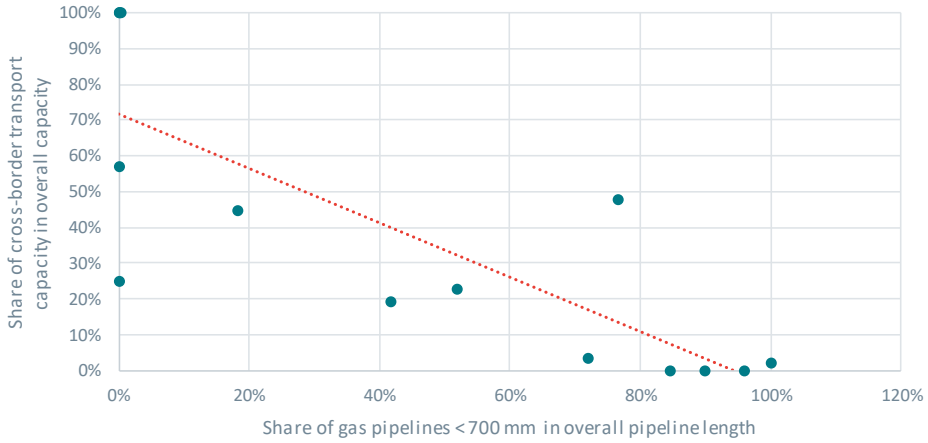
- 5 TSOs with only large pipelines for long-distance transport (particularly for cross-border gas transport through Germany)

# Cross-border gas transport through Germany with different cost structure

## Differences in TSO supply tasks result in different cost structure

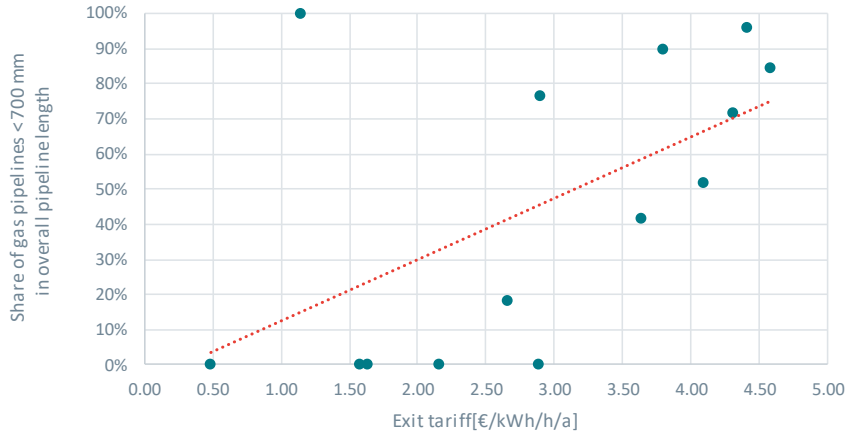
### Share of “transits” vs. share of smaller pipelines

TSOs focusing on cross-border gas transport have a lower share of pipelines with small pipeline diameters




### Share of smaller pipelines vs. exit tariff

Network tariffs determined based on costs for TSOs with a larger share of pipelines with small pipeline diameters tend to be significantly higher




**Tariff standardisation as per REGENT does not reflect the heterogeneity of gas grid transport!**

BNetzA also dispenses with an analysis of positive overall economic effects

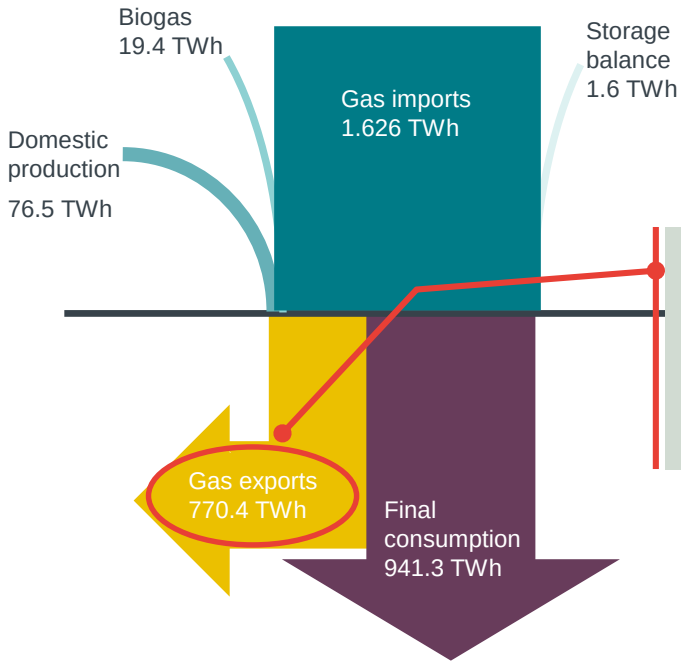
This does not just apply to the reference price, but – owing to a narrow corridor due to regulations on the pricing of interruptibility – also to conditional capacity products (e.g. DZK)

# NC TAR demands that tariff system does not distort cross-border trade

NC TAR stipulation on cross-border trade

- **No distortion of cross-border trade** (Art. 7 p. 2 lit. e).
- **The end customer should not bear a significant quantity risk** – in particular related to gas transport across an entry/exit system (Art. 7 S. 2 lit. d)
- REGENT draft addresses these requirements of the tariff system only in comparison with the capacity-weighted distance method
  - **No comparison with alternative postage stamp tariff systems** with different degrees of differentiation

Great importance of cross-border gas transport for Germany




In 2016, 45% of the available gas volume was piped through Germany (2017 monitoring report)

Cross-border gas transport through Germany is everything but neglectable!

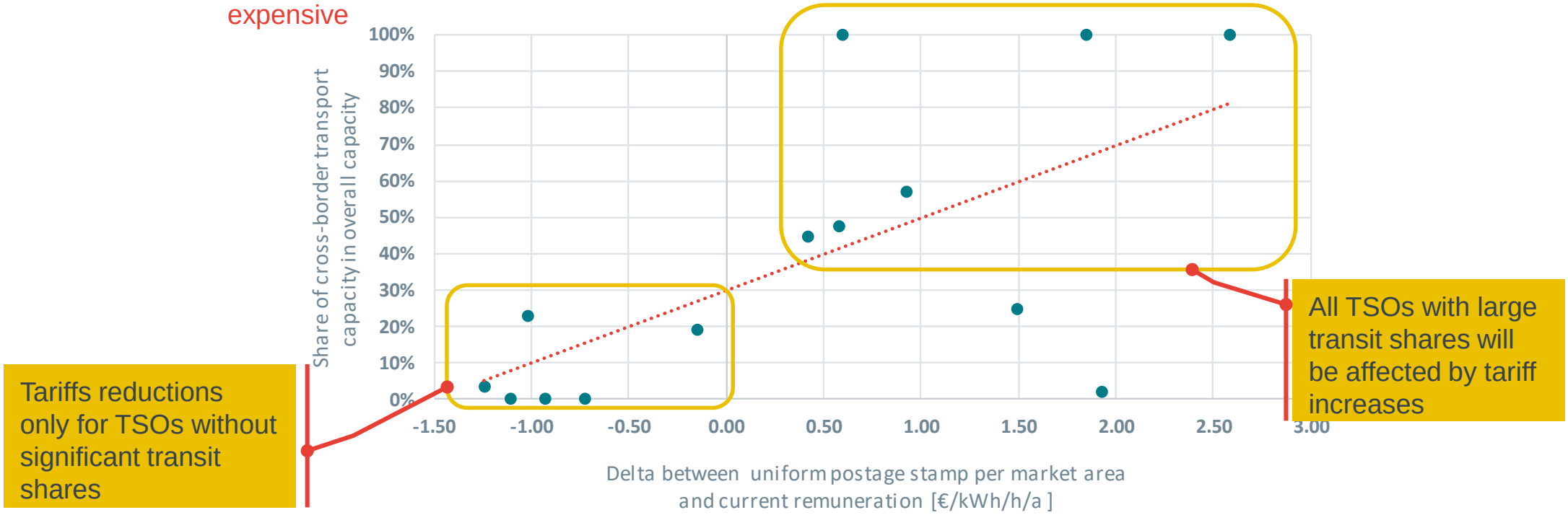
There is good reason for a separate consideration of these transports in determining network tariffs

# The standardisation of network tariffs leads to more expensive cross-border gas transport which is not cost-reflective

**Standardisation entails higher tariffs for cross-border transport**

- Until now, tariffs for TSOs with a large share of cross-border transport have been lower than those for TSOs with a large share of "regional distribution"
- A postage stamp tariff as per REGENT would increase the tariffs for cross-border transport, whereby inland supply tasks are "cross-subsidised"
- The increase of tariffs for cross-border gas transport is not caused by changed cost structures of TSOs, but simply a results of REGENT

REGENT postage stamp tariffs make tariffs for TSOs with a high share of cross-border transport more expensive



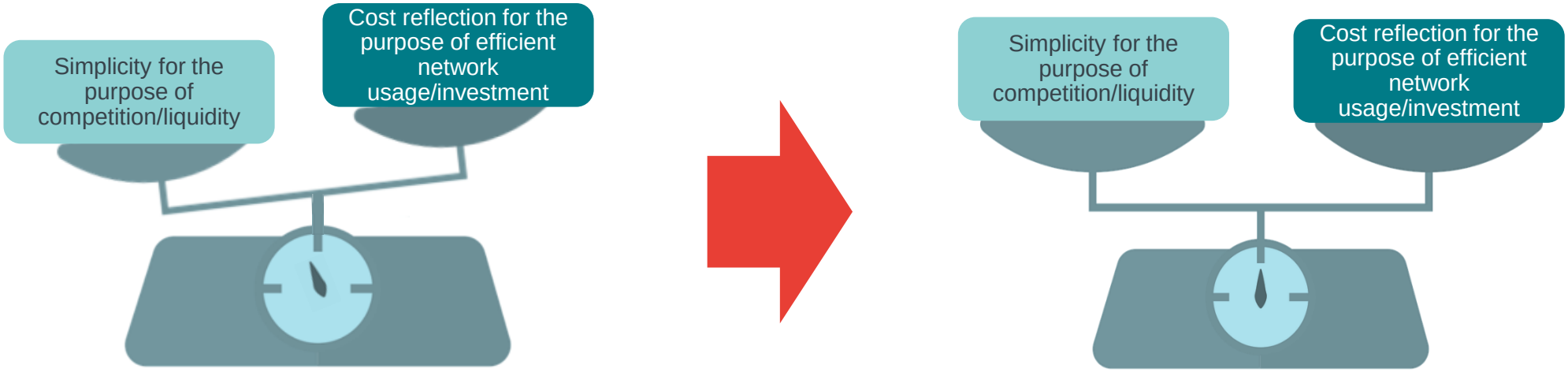
# Price increase for cross-border transport presents a quantity risk and ultimately a risk for end consumers in Germany and the EU gas market

**Bookings compete internationally**

- **Potentially high price elasticity of cross-border gas transport through Germany**
- Increasing prices could trigger **evasive reactions by transport customers**, which would lead to a reduction in bookings, such as:
  - Use of alternative transport routes
  - Switch to alternative procurement sources including LNG
  - Reduction in cross-border arbitrage trading
  - Reduction in demand in target regions

**Consequences of reduced bookings**

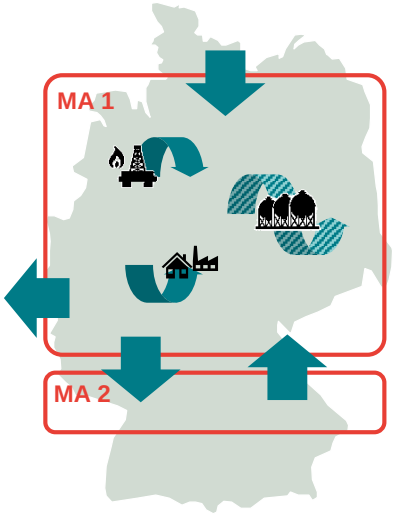
- **Increase in tariffs for German end consumers** to compensate for the lost revenue
  - Reduction in transport bookings for cross-border gas transport by 20%, for example, means a reduction in revenue of around 180 million euros, which must be compensated by increasing the uniform postage stamp tariff by approx. 10%
- **Reduced liquidity in the European gas trade**
- **Burden on foreign end consumers** due to the undue shift of the burden from German end consumers to end consumers of neighbouring countries (if network tariff increase can be passed-on to end consumers)

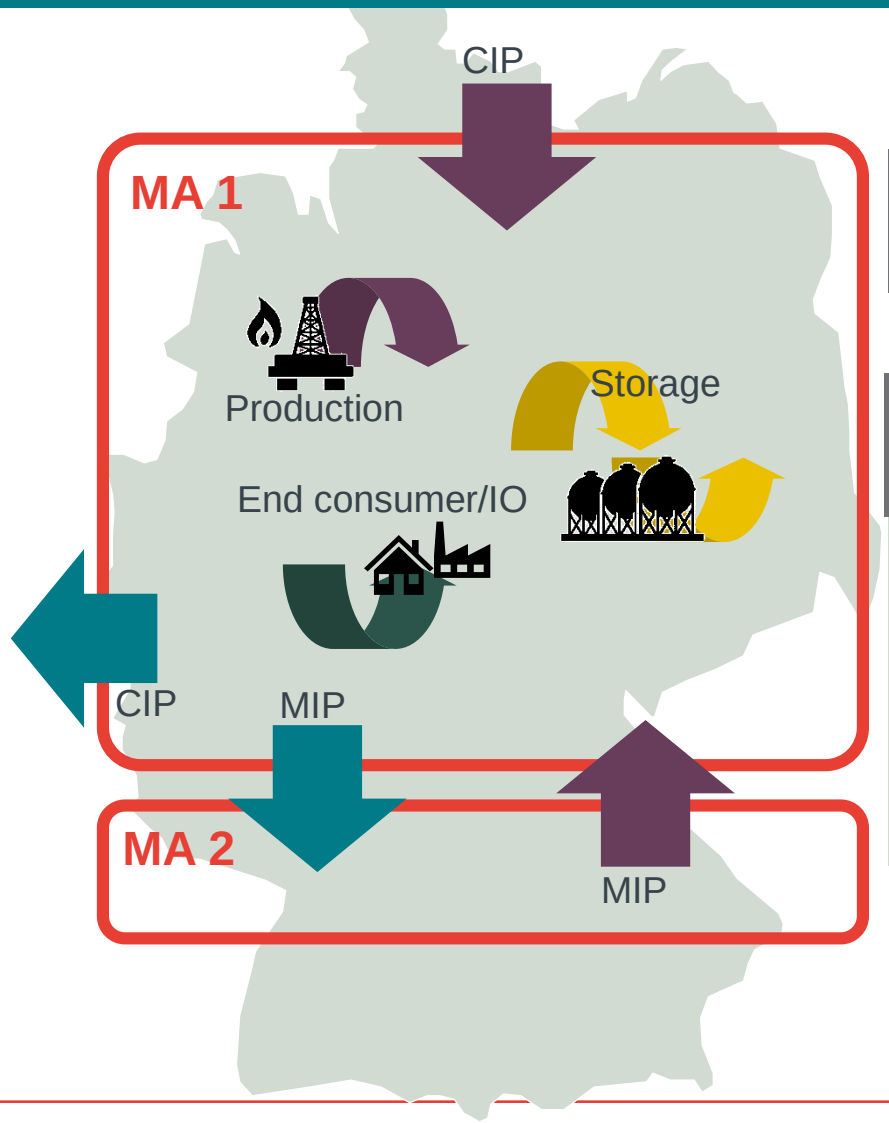


# Alternative design: Four network point type-specific market-wide uniform postage stamp tariffs

**REGENT**

**Four network point type-specific market-wide uniform postage stamp tariffs**




**Uniform postage stamp in a market area per network point type**

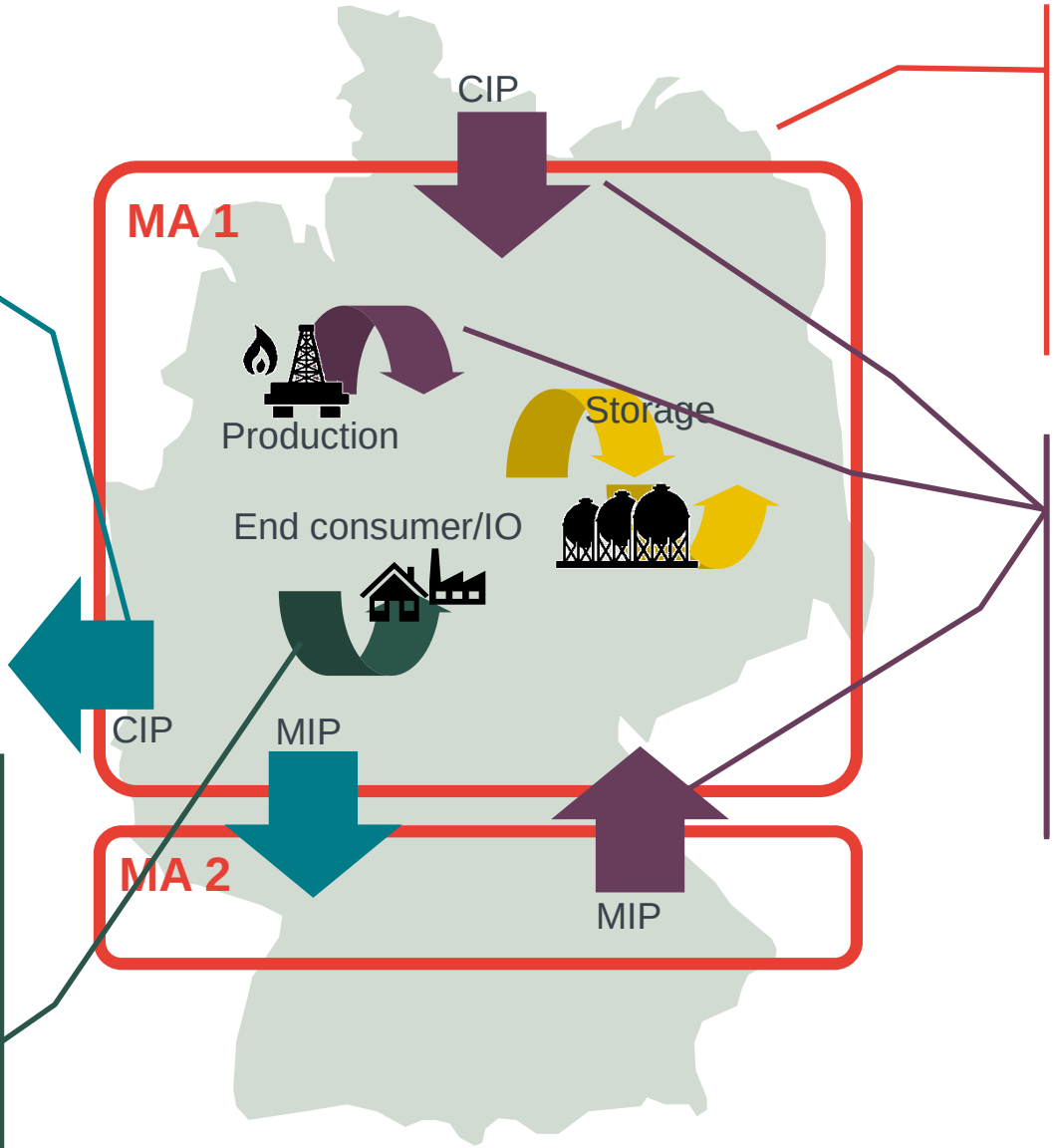
**Differentiation between at least four network point types**

- Entry points
- Storage (possibly diff. for Entry/Exit)
- End consumer / IO
- Exit points MIP / CIP

**Four postage stamps with a higher degree in cost reflection**

# Core idea: Use of network point types as proxy for supply task

Bookings at cross-border exit points are considered as transit




Bookings at four different **network point types** indicate **different nature of gas flows** and its corresponding **supply task** (basis for efficient cost allocation)

Entry flows serve both transits and domestic supply

Bookings at exit to final consumers (or downstream network operators) are considered to supply domestic consumption

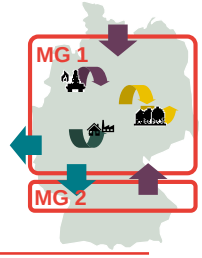
# Calculation analogous to REGENT approach, but with additional allocation of forecasted capacity to network point types

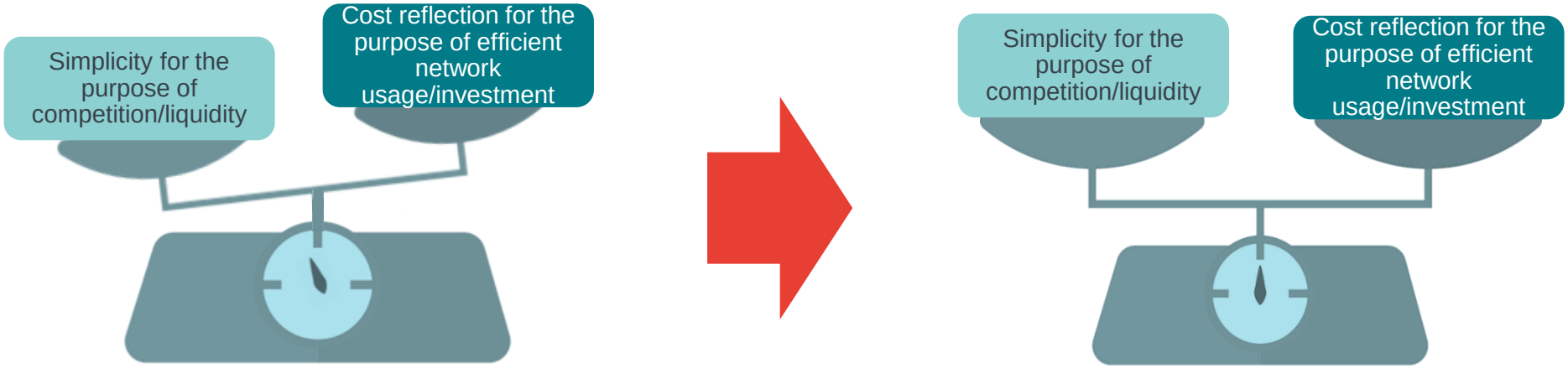
| | TSO-specific | Network point type-specific |
|---|---|---|
| Cumulation of forecast capacities (equivalent to REGENT), but separately for all network points and TSOs<br>→ For each network point type and TSO: Share of forecasted capacity | ✓ | ✓ |
| Split of revenue cap (EOG) of each TSO on the basis of this TSO's capacity share per network point type<br>→ For each network point type and TSO: EOG in million EUR | ✓ | ✓ |
| For each network point type: Cumulation of network point type-specific EOGs of all TSOs in market area; and division by cumulated forecasted capacity of this network point type<br>→ For each network type: Market area-wide postage stamp tariff | | ✓ |

Postage stamp idea remained:

No competition between points within market area through **market area-wide uniform tariff per network point type**

# Conclusion on alternative with four network point type-specific, market area-wide uniform postage stamps




Appropriate balance between **simplicity** (to foster competition and liquidity) and **cost-reflective** signals for network users (to incentivise efficient network use and investment)

**Increased efficiency while keeping the main advantages of a postage stamp!**

# Summary

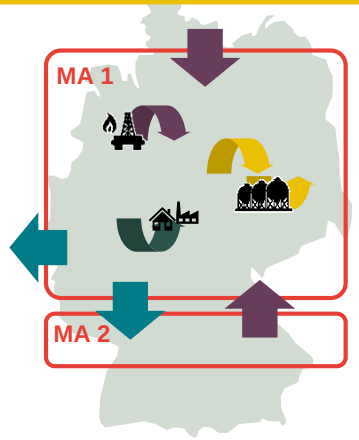
## BNetzA proposes far-reaching standardisation

- NC TAR demands EU-wide tariff harmonisation based on various criteria
- BNetzA proposes a **market-wide uniform postage stamp tariff without further tariff differentiation**
  - → Taking into account the economic aspects, in the German context, this is probably **too much of a far-reaching standardisation**
  - → Adjustements are necessary

## A missing reflection of important economic aspects

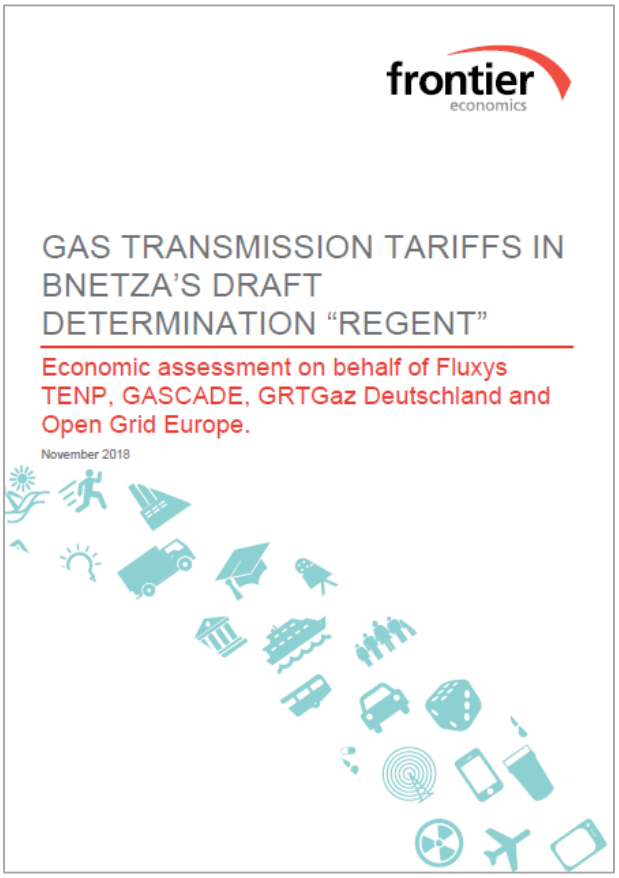
- **Incentives for as liquid competition as possible vs. incentives for efficient network usage**
  - Significant (real) cost differences in the system
- REGENT postage stamp tariff **does not take into account the heterogeneity of supply tasks**
- REGENT draft **harms cross-border gas transport** due to distorted price signals and thus leads to inefficiencies to the detriment of all customers

## Alternative postage stamp design has advantages




- **Cost-reflective network tariffs within market-wide uniform postage stamp tariffs are possible**
- This requires **additional tariff differentiation based on different supply tasks**:
  - Network point type-specific postage stamp model

# Annex to presentation:




**Disclaimer**

The report by Frontier Economics includes three potential alternative tariff models, of which only one, i.e.

**Alternative 1** (Section 6.2)

has been presented and discussed in the consultation with BNetzA.

# GAS TRANSMISSION TARIFFS IN BNETZA'S DRAFT DETERMINATION "REGENT"

## Economic assessment on behalf of Fluxys TENP, GASCADE, GRTGaz Deutschland and Open Grid Europe.

November 2018

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# TABLE OF CONTENTS

# LIST OF ABBREVIATIONS

| | |
|---|---|
| AMELIE | Determination concerning the introduction of an effective inter-transmission system operator compensation mechanism within a market area |
| CIP | Cross-border Interconnection Point (GÜP) |
| DAC | Dynamic Allocable Capacity (DZK) |
| DSO | Distribution System Operator |
| GasNEV | Gasnetzzugangsverordnung (Gas Network Charges Ordinance) |
| MAIP | Market Area Internal Interconnection Point |
| MIP | Market Area Interconnection Point |
| NC TAR | European Ordinance 2017/460 concerning the network code on rules regarding harmonised transmission tariff structures for gas |
| NEL | Nordeuropäische Erdgasleitung (Northern European natural gas pipeline) |
| REGENT | Determinations concerning the periodic decision making regarding the reference price methodology and the other points listed in Article 26 (1) of Regulation (EU) 2017/460 applicable to all transmission system operators operating in the NetConnect Germany/Gaspool entry-exit system |
| TSO | Transmission System Operator |
| VTP | Virtual Trading Point |

# SUMMARY

On May 16, 2018, the Bundesnetzagentur (“BNetzA“) published its draft statement on a decision with regards to the reference price method (“REGENT“). The decision serves for the national implementation of the European Commission Regulation (EU) 2017/460 of 16 March 2017, establishing a network code on harmonised transmission tariff structures for gas network operators (“NC TAR“). In particular, it contains the transition to uniform capacity charges for all gas transmission system operators (TSOs) within a market zone (**uniform postage stamp tariff**).

With REGENT, BNetzA makes use of its discretionary room for adjustment provided by NC TAR and chooses a postage stamp model, which defers from the capacity weighted distance reference price methodology, which NC TAR envisages as the methodology for comparison. **The BNetzA approach of a market area-wide uniform postage stamp without further tariff differentiation, however, implies a too extensive harmonization of network tariffs**.

From an economic perspective, it is necessary to apply a network tariff system that balances both the incentives for liquid competition on the one hand, and the incentives for an efficient use of the network on the other hand. However, the simulation of a competitive “price mechanism“ for network usage requires cost-reflective network tariffs to avoid disincentives and thus ensure an efficient overall gas supply for all customers. Therefore, the **aim of cost reflective network tariffs** is a common objective in the entire legal framework (i.e. EC directive 715/2009; NC TAR; Gas Network Access Directive). The REGENT approach clearly contradicts this objective by introducing fully harmonised network charges.

**The REGENT approach does not consider the vast heterogeneity of the supply tasks of the German gas transport system.** The German gas system has to provide at least two core services: first, gas transportation for the Germany-wide supply of domestic consumers; and second, cross-border gas transportation through Germany or a market area. Both services have very different requirements in terms of the network structure and therefore imply **very different cost structures**. Empirical analyses prove that cross-border gas transport generally causes significantly lower costs in the network, compared to the supply of domestic end consumers.

**Especially in terms of cross-border gas transportation, the REGENT postage stamp does not reflect the real cost situation within the network.** On the contrary: the REGENT stamp increases the price of cross-border gas transportation substantially and thus implies a quantity risk also for the final customer. In Germany, the **transportation of gas through the country is of special importance: It accounts for 45% of the total gas volume**. As these transmission quantities are facing international competition, the tariff increase caused by the REGENT postage stamp might result in significantly decreasing bookings. If bookings of cross-border gas flows are lost, gas consumers in Germany would ultimately have to compensate the losses through higher tariffs. In addition, negative liquidity effects might impact the efficiency of wholesale markets. **As a result, the REGENT approach might therefore lead to distorted price**

**signals and thus inefficiencies at the expense of all customers, particularly with regard to cross-border gas transport.**

**However, cost reflective network tariffs can also be implemented within a market-wide uniform postage stamp model**, if further differentiations are introduced, to reflect supply tasks with significant cost differences. **We suggest three different models for this purpose.** These models either use the type of network points or the different capacity products as a "proxy" to reach a more appropriate cost allocation to different supply tasks in the network:

- As it would be the case under REGENT, a **"network point type-specific postage stamp model"** would impose a uniform tariff design to be applied for TSOs within a market area. However, in contrast to REGENT, the tariffs would be further differentiated by different types of network points, i.e. for entry points, storage entry and exit, exit points to the end consumer and exit points at market area or cross-border interconnection points. Such a model could strike the balance between cost-reflective tariffs on the one hand and simplicity on the other hand.
- The model presented above can be extended to include a **"network point type-specific postage stamp with pricing of MAIPs",** where a further cost differentiation would be made by considering exchange points between TSOs within a market area (MAIP).
- A simpler approach to reflect lower costs of gas transmission through Germany (or one of its two market areas) and avoiding the loss of cross-border gas flows could be a **"special discount on DAC products"** by means of which large parts of today's cross-border gas transport are already booked today. To this end, however, the narrow discount bandwidths currently resulting from BEATE for the pricing of dynamically allocable capacity (DAC; or DZK in German) would have to be extended.

# 1 INTRODUCTION

## Context and task

On 16 May 2018, the Bundesnetzagentur ("BNetzA") published its draft statement on a decision with regards to the reference price method ("REGENT").

The decision represents the national implementation of European Commission Regulation (EU) 2017/460 of 16 March 2017, establishing a network code on harmonised transmission tariff structures for gas network operators ("NC TAR").In its draft decision, BNetzA proposes uniform capacity charges for all transmission system operators (TSOs) within a market zone (uniform postage stamp tariff), which compares with the current practice of TSO-specific tariffs. Accordingly, incentives for network users will change considerably. There is a concern that such an extensive simplification could lead to inefficiencies and, ultimately, to additional costs in the German gas system. Here, there is a particular focus on the effects on cross-border gas transport.

The transmission system operators (TSOs) Fluxys TENP GmbH, GASCADE Gastransport GmbH, GRTGaz Deutschland GmbH and Open Grid Europe GmbH have therefore commissioned Frontier Economics Ltd. ("Frontier") to provide an economic assessment of the draft decision. The analysis is limited to considering market area-wide common tariffs for all TSOs, and is only concerned with possible amendments to the setting of these market area-wide tariffs. An overarching analysis taking into consideration TSO-specific tariff setting pursuant to NC TAR art. 10 (2) is outside the scope of the report.

## Structure of the report

The report is structured as follows:

- **Section 2: BNetzA proposes an extensive uniformization of tariffs** – We describe the reference price method of a uniform postage stamp tariff without further tariff differentiation, as suggested by BNetzA.
- **Section 3: Network tariffs need to reflect economic incentive effects** – We outline that in the decision on the degree of harmonisation of network tariffs the economic incentive effects for network users must be taken into account. Otherwise, there is an increased risk of unintended incentives and ultimately inefficient network use and possibly investment.
- **Section 4: the heterogeneity of transmission services suggests a market-wide uniform tariff** is not appropriate – We explain how various transmission services, such as cross-border transportation compared with regional distribution, differ greatly and thus have very different cost structures. As a consequence, a market-wide uniform gas tariff, as proposed in REGENT, will bring about a shift away from setting network tariffs on the basis of cost reflectivity, which is a core objective of NC TAR and the Gas Network Changes Ordinance ("GasNEV").
- **Section 5: A market-wide uniform tariff makes cross-border gas transportation through a market area more expensive and brings the risks of a decrease in this type of gas transportation and ultimately additional**

**costs for consumers in Germany** – We show how cross-border flows of gas are particularly negatively affected by market-wide uniform tariffs, as these frequently have lower network tariffs in the previous network tariff system – in line with the lower costs of cross-border gas transportation compared to more expensive regional distribution. If the uniform tariff leads to a drop in revenue from cross-border gas transportation, which today is around 45% of the gas flows in Germany, there is a danger that, as a result, all German network users (and ultimately gas consumers) will be worse-off.

- **Section 6: Cost-reflective network tariffs are possible, even within a market area-wide postage stamp model** – We explain how, within a model with a market-wide postage stamp tariff, various versions are conceivable which lead to more cost-reflective and efficient pricing.

# 2 BNETZA PROPOSES AN EXTENSIVE TARIFF STANDARDISATION WITH ITS UNIFORM POSTAGE STAMP TARIFF AS PER REGENT

As a basis for the analysis undertaken in subsequent sections, in this section, we describe how:

- the REGENT draft statement on the decision will lead to the introduction of a market-wide uniform network postage stamp tariff from 1 January 2020 (Section 2.1); and
- further tariff differentiation would be possible (Section 2.2).

## 2.1 The REGENT draft means market-wide uniform postage stamp tariffs without further tariff differentiation

As a reference price method for setting reference prices for entry and exit points of the TSOs from 1 January 2020, the REGENT draft decision calls for so-called postage stamp tariffs (see REGENT number 1).

Even if BNetzA does not explicitly state this in REGENT, this effectively means a postage stamp tariff which is to be applied commonly to all transmission system operators in a market area. This is clear from the fact that BNetzA makes no explicit decision about the exception of a common application of the reference price method as per art. 10 para. 2 NC TAR.

BNetzA is therefore proposing an uniform postage stamp tariff for each market area in Germany as a reference price method for setting TSO tariffs from 1 January 2020. The tariffs will not be differentiated depending on the supply tasks behind the respective bookings (such as cross-border transportation through a market area vs. regional distribution) – with the exception of the connection of storage units.

## 2.2 Adjustments to the BNetzA approach are possible and necessary

With the decision to have a uniform postage stamp tariff for all TSOs of a market area, BNetzA is using the leeway envisaged by the NC TAR in the following two places:

- **Uniform postage stamp tariff instead of distance-related approach** – with the postage stamp tariff model, BNetzA deviates from the reference

price method of capacity-weighted distance, which NC TAR envisages as the method for comparison.[1]

- The authority justifies the choice of the postage stamp tariff approach in detail in the REGENT draft statement, citing among other things the greater transparency and better plausibility for network users (REGENT, point 80) as well as a higher fairness of cost causation in a complex gas system as in both German market areas (REGENT, point 50).
- In this report, we do not assess BNetzA's choice of a uniform postage stamp tariff model. Instead, we are exclusively concerned with its actual form.

- **In the German context, a more specific form of the uniform postage stamp tariff seems necessary** – BNetzA rejects the possibility of a separate application of a reference price method for each TSO. This possibility is explicitly envisaged in NC TAR article 10 para. 2.

  *"As an exception […] the national regulatory authority may […] decide a) that the same reference price methodology is applied separately by each transmission system operator within an entry-exit system*"

  - In this particular case, a corresponding form of the postage stamp tariff would therefore also be possible as separate postage stamp tariffs. This would result in an individual entry and exit tariff for each TSO. However, this possibility is not examined further in the present assessment.
  - **In the REGENT draft decision,** BNetzA explains in detail its choice of a postage stamp tariff model with regard to the criteria named in art. 7 of NC TAR: (a) transparency/plausibility, (b) fairness of costs, (c) freedom from discrimination, (d) avoidance of quantity risks due to the loss of cross-border gas transportation and (e) undistorted cross-border trade. However, these statements refer exclusively to a comparison of capacity-weighted, distant-dependent tariffs and postage stamp tariffs. BNetzA does not discuss the advantages and disadvantages of various postage stamp tariff specifications with different degrees of differentiation.

  In this short assessment, we explain that a complete standardisation of the network tariffs within the framework of a uniform postage stamp tariff for all TSOs and all types of network points, as proposed by BNetzA, is too far-reaching, and thus neither appropriate nor reasonable in the German context from an economic perspective. Instead, a differentiated form of the postage stamp tariff would be advisable in order to be able to reflect the specific supply tasks in an appropriate manner.

[1] Cf. NC TAR Recital 3, line 5: "If the method of capacity-weighted distance is not selected as the reference price method, the envisaged reference price method should be compared with it."

# 3 NETWORK TARIFFS NEED TO TAKE ECONOMIC INCENTIVES INTO ACCOUNT

The network tariff system represents an essential coordination mechanism in a vertically disaggregated gas market such as the German and European gas market. Through this, network users and operators are given network use and investment signals.

The regulatory design of network tariffs must balance a number of different aims when determining the appropriate degree of differentiation/standardisation of network tariffs. This applies in particular to:

- the creation of ideal conditions for competition and market entry, which tend to justify some degree of simplification, such as standardisation of tariffs (section 3.1); and for
- the efficient use of networks, which requires cost-reflective tariffs (section 3.2).

These aims are naturally contradictory to some degree. The European and national legal framework, e.g. in the form of EC Regulation 715/2009, NC TAR or the Gas Network Charges Ordinance (GasNEV), certainly already emphasise the importance of cost-reflective tariffs (section 3.3).

The first conclusion we can draw is that the proposal of a market-wide uniform postage stamp tariff without further differentiation gives priority to the aim of simplicity, whereas the question of efficient network use through cost-reflective tariffs receives only little consideration (section 3.4).

## 3.1 Creating the conditions for competition justifies a certain standardisation of network tariffs

The liberalisation of the gas market is based on the idea of creating access to the gas network which is transparent and free from discrimination for a wide variety of market actors in order to allow a gas-to-gas competition between various producers, importers, traders and sales companies – in spite of the natural monopoly at the pipeline and distribution network level. To promote this competition and the liquidity of trade among market actors, the entry-exit system was introduced where pipeline network tariffs were deliberately levied independent of concrete transportation routes. This allows market actors to contract entry and exit points separately from one another and to have gas transported between (almost) any entry and exit points – and consequently to be able to trade with other market actors.

In this respect, it requires a certain abstraction of the network tariffs of individual bookings from the physical network structure, and thus also the exact costs caused by these bookings in the gas network, in order to promote competition and liquidity. Thus, there may be reasons that justify the postage stamp model as a suitable reference price method. A complicated and non-transparent tariff system, could pose the danger of acting as a market entry barrier for new market participants and, where applicable, disadvantage smaller market participants who do not have

the resources to continually minimise the costs of capacity bookings within a complicated tariff system.

## 3.2 Efficient network requires cost-reflective network tariffs

The network tariff system is one of the central drivers of network use: network users such as gas producers, importers, traders or sales companies decide when, where and to what extent they use the gas network on the basis of the network tariffs they must pay. Network tariffs therefore represent the "price mechanism" of network usage.

In competitive markets, the price is determined by the interplay of supply and demand. In functioning competitive environments, network tariffs would reflect the (long-term or forward-looking) differential costs which are actually linked with network use, meaning that each network user would bear the costs causally connected with usage.

As a result, such cost-reflective pricing leads to efficient network use and efficient investment decisions:

- With network tariffs which reflect the costs, each network user takes into account the costs actually connected with their capacity booking in the gas system. They will then only use the gas network if the resultant benefits exceed the costs incurred.
- In addition, a network user, e.g. an industrial company, will also take into account the gas network tariff, as well as many other location factors, when deciding where to settle. This decision will be made with a minimal consideration of overall costs only if these reflect the actual (long-term or forward-looking) costs of network use (or of network connection).

The competitive ideal of a cost-reflective network tariff should be as close as possible to a corresponding regulatory "as-if competition" design (while taking into account the effects of network tariffs on gas-to-gas competition and trade liquidity, see section 3.1) in order to avoid disincentives and consequently to ensure a generally efficient gas supply to all customers.

## 3.3 Legal framework demands cost-reflective tariffs

The aims mentioned above are potentially partly contradictory. This need for consideration is also reflected in the European and national legal frameworks. Here, the need for fundamentally cost-reflective network tariffs is highlighted with the aim of creating incentives for the efficient provision of services:

- EC Regulation 715/2009 on access to natural gas transmission networks[2] highlights the significance of tariffs which reflect the costs and undistorted cross-border trade (emphasis added by Frontier):

[2] Regulation (EC) No. 715/2009 of the European Parliament and the Council of 13 July 2009 on the on conditions for access to the natural gas transmission networks and repealing Regulation (EC) No. 1775/2005.

  - The […] tariffs or the methodologies used to calculate them, applied by the transmission system operators […], shall be transparent, take into account the need for system integrity and its improvement, **reflect the actual costs incurred**, insofar as such costs correspond to those of an efficient and structurally comparable network operator and are transparent, whilst including an appropriate return on investments" (Art. 13 para. 1).
  - "Tariffs for network access shall neither restrict market liquidity nor distort trade across borders of different transmission systems" (Art. 13 para. 2).
- **NC TAR** demands, among other things, that the reference price method should seek to (emphasis added by Frontier)
  - "**taking into account the actual costs incurred** for the provision of transmission services", yet "considering the level of complexity of the transmission network" (Art. 7 s. 2 lit. b);
  - "ensuring non-discrimination and prevent **undue cross-subsidisation**" (Art. 7 s. 2 lit. c); and
  - "ensuring that the resulting reference prices **do not distort cross-border trade**" (Art. 7 s. 2 lit. e).
- In this context, the Gas Network Access Ordinance (GasNZV)[3] demands (translation by Fronitier)
  - that the "entry tariff [...] shall be created by the network operator as causation-related as possible in accordance with recognised economic procedures" (Section 15 para. 2 line 1). Here, it is mentioned explicitly that "**incentives for the efficient use of the existing capacities in the supply network**" must be set (Section 15 para. 2 line 2 no. 3).

## 3.4 BNetzA proposal abstracts strongly from cost-reflective network tariffs

As explained, the determination of a network tariff system requires the consideration of various aims, in particular the creation of good conditions for competition (which potentially speaks in favour of tariff harmonisation) and the generation of signals for efficient network use (which speaks in favour of tariff differentiation to the extent that the differentiation arises from cost reflective tariffs).

With their suggestion of a market-wide uniform network postage stamp tariff for entry or exit points, BNetzA has opted for very extensive standardisation of tariffs without possibilities for differentiation. From a competition perspective, this may be beneficial, as potential market entry barriers are broken down and the transparency and simplicity of the tariff system is increased. However, the authority largely dispenses with cost-reflective network tariffs, which could result in network user

[3] Cf. Ordinance on the tariffs for access to the gas supply networks (Gas Network Charges Ordinance – GasNEV) of 25 July 2005 (BGBl. I p. 2197), last amended by article 118 of the law of 29 March 2017 (BGBL. I p. 626).

disincentives for useful network behaviour – and thus potentially lead to inefficient network use and ultimately to negative economic effects.

The extent of the negative economic effects resulting from tariffs which do not reflect the costs depends on two main factors:

- The **extent of the deviation** of the resulting network tariff from cost-reflective network tariffs. In section 4, we show that the great heterogeneity of costs in connection with the transport tasks of the TSOs in Germany means that a market-wide uniform postage stamp tariff as per REGENT leads to significant deviations in tariffs for many gas transportation services caused by the actual costs in the gas network behind the bookings. This applies notably to cross-border gas transport.
- The **price sensitivity of network users.** The more a network user adapts their network use in response to tariff changes, the larger the distortion caused by non-cost-reflective tariffs. In section 5, we explain that, particularly in the case of cross-border gas transport, we must expect price-sensitive reactions of network users.

Finally, it seems desirable from an economic perspective to focus more on the design of the tariff systems which involve more harmonisation of both economic incentive effects (creation of good competition conditions vs. generation of adequate price signals.) As demonstrated in section 6, this is also possible within the framework of a market area-wide postage stamp tariff; however, this requires a larger level of differentiation with regard to different supply tasks and the cost structures linked to these.

# 4 THE REGENT POSTAGE STAMP TARIFF DOES NOT TAKE INTO ACCOUNT THE HETEROGENEITY OF SUPPLY TASKS

Gas grids are usually characterised by different transportation tasks which are carried out by TSOs. Here, we must differentiate between:

- Gas transport for the comprehensive supply of domestic consumers;
- Gas pipelines for cross-border gas transport through a country or market area.

The supply task has influence on the sizing and (seasonal) capacity of the network, which typically translates into different cost structures for gas pipelines. Accordingly, this leads to the question of how much these cost differences should also be reflected in the network tariffs.

This is discussed in the following where we:

- first show that the German gas grid is particularly characterised by a heterogeneous structure (section 4.1);
- show that cross-border gas transport is characterised by different cost structures to other forms of gas transport (section 4.2);
- conclude that the large heterogeneity of costs in connection with the TSO transport task in Germany speaks against an extensive standardisation of network tariffs without any possibility of further differentiation to reflect different supply tasks (section 4.3).

## 4.1 The German gas grid is characterised by heterogeneous tasks and complex network structures

The structure of the gas grid in Germany is unique in Europe. While in all other EU member states only one to a maximum of four TSOs operate the whole gas grid, and thus cover the whole spectrum of TSO supply tasks, in Germany there are 15[4] TSOs who differ from each other in their supply tasks, in some cases to a substantial extent. This also explains why the network structures of the different TSOs in some cases differ significantly from each other.[5]

The German situation is also founded on the fact that the historically stronger vertical subdivision to gas transport levels I ("Ferngasstufe I") and II ("Ferngasstufe II") as well as regional and distribution networks was, in accordance with the

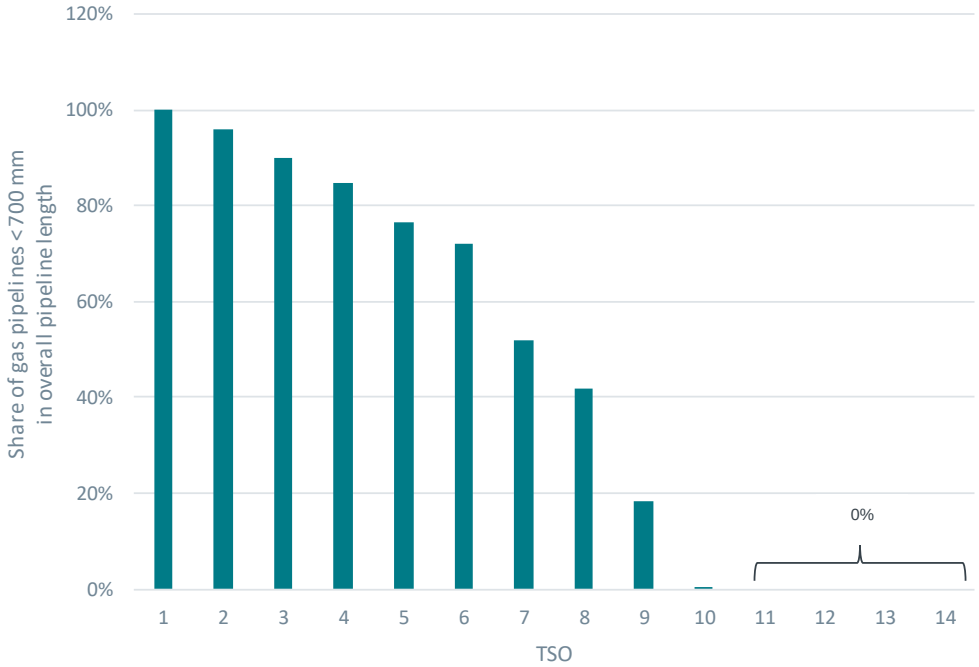
[4] In the 2017 BNetzA and BKartA monitoring report, 16 TSOs were listed. However, jordgasTransport GmvH (jordgas) no longer markets its own transport capacities as of 1 January 2018. Instead, from 1 January 2018 to 31 December 2019, it markets via OGE (Open Grid Europe GmbH) and for the period beyond this, it is planned for OGE and Gasunie to take over the marketing. The number of TSOs is thus reduced to 15.

[5] The following analysis refers to 14 TSOs. Lubmin-Brandov Gastransport GmbH (LBGT), which operates a 20% co-ownership share in the OPAL pipeline, was not included in the analyses as the technical operation of OPAL is carried out by OPAL Gastransport GmbH (OGT), who we do consider in the analyses. Furthermore, LGBT does not have regulated exit transport capacities.

European regulatory framework, transferred to a two-part system of TSOs and DSOs, which led to challenges to draw an appropriate line between network operators that are considered as TSOs and DSOs.

The extent of heterogeneity of TSO supply tasks can be seen with reference to various features. Figure 1 shows, for each TSO in Germany, an example of the proportion of pipelines kilometres of pipelines with a diameter smaller than 700 mm over all pipeline kilometres. While a few TSOs almost exclusively have this kind of "smaller" gas transmission pipelines for regional distribution, five TSOs exclusively operate pipelines with larger pipe diameters. These essentially serve to transport larger volumes of gas over longer distances, above all for cross-border gas transport through Germany.

**Figure 1 Proportion of pipelines < 700 mm diameter over all pipeline kilometres for each TSO**




*Source: Frontier Economics*

*Note: The proportions are based on the structural data published on the websites of the individual TSOs determined in accordance with Section 27 para. 2 GasNEV for calendar year 2017.*

Here, the differences between the TSOs are generally structural. This means that, over time, no significant reduction in heterogeneity can be observed; rather, the differences tend to be permanent.

## Complex gas grid in Germany

The large number of different gas grid networks which are partly only connected with each other physically with different operators leads to a high degree of complexity in the German gas grid. BNetzA explicitly refers to this multiple times in the REGENT draft decision (e.g. in point 47).

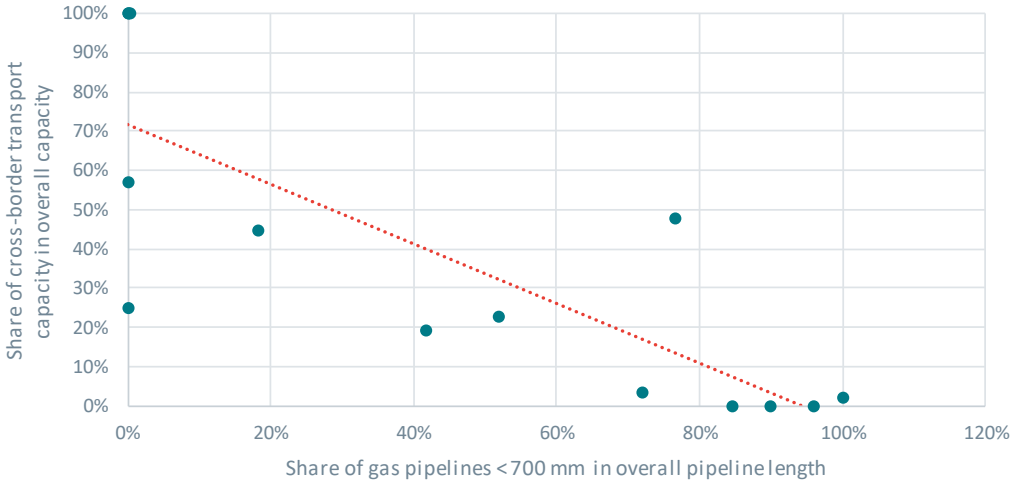
Furthermore, we can expect the complexity of the system to increase even further with the intended merger of both market areas, at least in the short term.

## 4.2 Cross-border gas transport has particularly different cost structures

Below, we show that the differences in TSO supply tasks mentioned above are also reflected in different cost structures, where cross-border gas transport in particular systematically indicates lower network costs.

Crucial for this is, above all, the sizing of the pipelines. Gas grid pipelines which are predominantly used for cross-border gas transport are on average significantly larger than gas grid pipelines for the comprehensive supply of end consumers. This can be seen empirically when comparing TSOs with different proportions of cross-border gas transport: Figure 2 illustrates how TSOs with a focus on cross-border gas transport tend to have fewer pipelines with a small pipeline diameter. Conversely, amongst the TSOs with a significant proportion of pipelines with a pipeline diameter smaller than 700mm, over 80% undertake almost no cross-border gas transport.

**Figure 2 Relationship between the proportion of pipelines with a small pipeline diameter and the proportion of cross-border transport for each TSO**



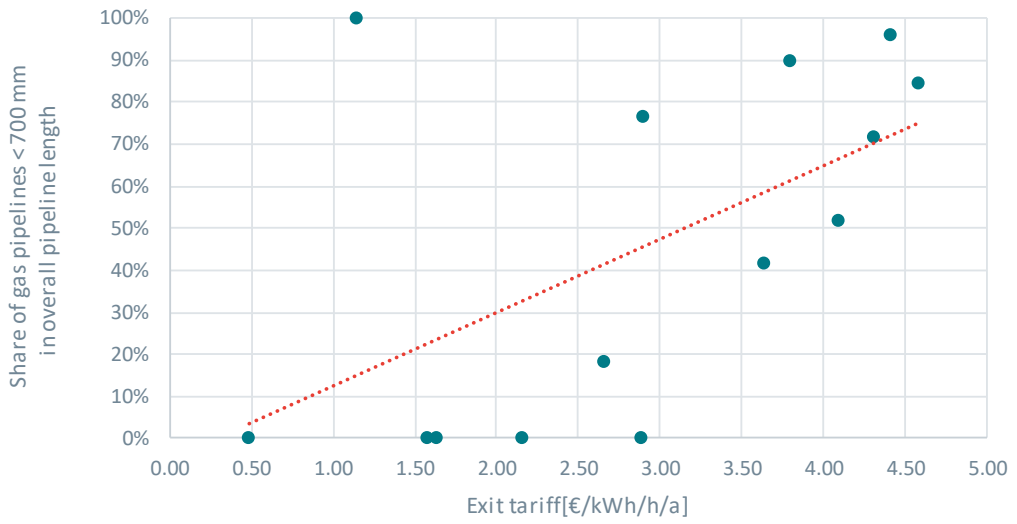

*Source: Frontier Economics*

*Note: The proportion of pipelines with a pipeline diameter is based on the structural data published on the websites of the individual TSOs collected in accordance with Section 27 para. 2 GasNEV for calendar year 2017.*
*The proportion of cross-border transport capacity for each TSO is based on the bookings for the period between 1 March 2017 and 28 February 2018, evaluated in accordance with the EntsoG Transparency Platform. Here, for simplicity, it is assumed that any cross-border exit booking represents transportation through Germany. Correspondingly, the cross-border transport is determined from the exit booking multiplied by factor 2, and set into the ratio of overall capacity bookings for entries and exits to obtain an estimate. Since, in practice, a part of the cross-border exit bookings are de facto listed as entry bookings by "upstream" TSOs (and not simplified as here with the TSO with which the exit was booked), this method only represents an estimate of the actual proportions for each TSO. However, various correction approaches (e.g. using confidential information for the four TSOs which commissioned the report) do not change the core statement of the illustration.*
*The dotted red line is a linear trend line based on the method of least squares.*

Due to economies of scale, these structural differences are reflected in the cost structures and thus in the level of network tariffs: Figure 3 illustrates this clearly for the proportion of pipelines with a diameter < 700mm. Thus, the cost-based network

tariffs set for companies who have a larger proportion of the specifically more expensive pipelines with small pipeline diameters are usually significantly higher.

**Figure 3 Relationship between the exit tariff (for 2018) and the proportion of pipelines with a small pipeline diameter**




*Source: Frontier Economics*

*Note: The exit tariffs are taken from the publications of the simplified tariff model of the TSOs for 2018 in accordance with art. 30 NC TAR.*
*The proportion of pipelines with a pipeline diameter of < 700 mm is based on the structural data published on the websites of the TSOs collected in accordance with Section 27 para. 2 GasNEV for the 2017 calendar year.*
*The dotted red line is a linear trend line based on the methods of the smallest squares.*

## 4.3 Conclusion: Tariff standardisation as per REGENT does not reflect the heterogeneity of gas grid transportation costs

The preceding statements show that the German gas grid fulfils very different supply tasks (as was made clear when, historically, there was a differentiation between various gas transport levels ). Accordingly, the cost structures differ, in particular costs of cross-border gas transport differs from costs of domestic supply. These differences are not taken into account by the tariff standardisation as per REGENT.

In its comments on the REGENT draft decision, BNetzA also dispenses with any attempt to prove that the resulting changed incentive effect caused by such an extensive standardisation actually leads to economic improvements. Such evidence also does not seem to be possible: In contrast, as we explain in the following section, the loss of bookings of cross-order gas transport in particular may cause a systematic worsening of the position of all network users.

The reference price method only applies to standard capacity products. However, due to the requirements (cf. REGENT, point 97) that the tariff for restricted capacity products must always lie between the price for the interruptible product and the price for the standard capacity product, there is also a significantly reduced pricing margin for restricted products as well (usually of around 10%, which corresponds

to the minimum discount for interruptible capacities), whereby an adequate reflection of costs of the tariffs of these products is also prevented.

# 5 THE REGENT POSTAGE STAMP TARIFF MAKES CROSS-BORDER GAS TRANSPORT MORE EXPENSIVE AND PRESENTS A VOLUME RISK, INCLUDING FOR END CONSUMERS IN GERMANY

Cross-border gas transportation across Germany to supply customers in neighbouring states plays a special role in connection with determining network tariffs.

In this section, we show that:

- NC TAR is already demanding that the reference price method must not lead to a significant volume risk being borne by the end customer caused by reduced cross-border gas transport and that cross-border trade must not be distorted (section 5.1);
- cross-border gas transport is very important in the German gas system, where a significant volume risk can quickly result in the case of price increases (section 5.2);
- the standardisation of network tariffs proposed by BNetzA makes cross-border gas transport in particular more expensive, although cross-border gas transport generally has significantly lower costs (section 5.3);
- bookings of cross-border gas transport face international competition, which is why a one-sided increase of network tariffs for cross-border gas transport through Germany can result in direct reactions of users of cross-border gas transport (section 5.4); and that
- a reduction of bookings of cross-border gas transport can have a negative effect on the whole German gas market and also on end customers in Germany (section 5.5).

## 5.1 Network tariff system should not distort cross-border trade or lead to a volume risk for end customers

Network tariffs which do not reflect the costs can lead to undesired responses from network users. This is particularly relevant for network use in the form of cross-border gas transport. The reason for this is that network users of cross-border gas transport, unlike, for example, end customers in Germany, are not, for the most part, "captive customers" of the German gas grid. Rather, they can partly substitute their use of the German gas network, for example by using alternative transport routes and/or alternative sources of gas.

NC TAR also recognises this risk. Accordingly, it demands that the reference price method should seek to :

- *"ensure that a significant volume risk related particularly to transports across an entry-exit system is not assigned to end customers within that entry-exit system*" (art. 7 p. 2 lit. d); and
- *"ensure that the resulting reference prices do not distort cross-border trade"* (art. 7 s. 2 lit. e).

In the REGENT justification, BNetzA explains that the reference price method of the postage stamp tariff (translation by Frontier):

- "*as a minimum, better fulfils the demands of art. 7 lit. d of Ordinance (EU) No. 2017/460 [meaning the avoidance of end customers having to bear a significant volume risk from gas transits] than the reference price method of capacity-weighted distance in accordance with art. 8 of Ordinance (EU) No. 2017/460*" (REGENT, point 70); and
- will cause *no disadvantages to cross-system network use*" (REGENT, point 77).

However, BNetzA – as explained in chapter 2.2 – refers exclusively to the comparison of a market area-wide postage stamp tariff model with a capacity-weighted distance method. A comparison of alternative postage stamp tariff systems with different degrees of differentiation is not made.

As we explain below, however, the effects of a commonly applied postage stamp tariff (without further differentiation) on cross-border trade and transport are negative.

## 5.2 Cross-border gas transport through Germany is very important

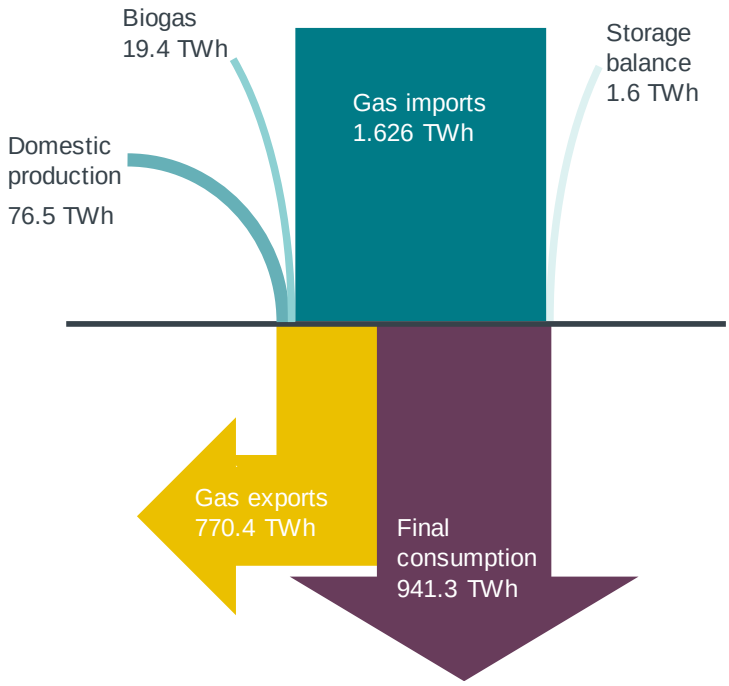
In its justification for the evaluation of the criterion of the extent to which the reference price method can ensure that end customers of entry and exit system do not have to bear a significant volume risk from cross-border gas transport (cf. Art. 7 s. 2 lit. d), BNetzA refers to recital no. 6 of NC TAR (see REGENT, point 63). Here, it says that the TSOs transport significantly more gas to other systems in some entry and exit systems than for consumption purposes in their own entry and exit system.

With reference to the fact that in the market areas for NetConnect Germany and GASPOOL, it is not significantly more, but on the contrary, significantly less gas which is transported to other systems than for consumption purposes in their own market area, BNetzA already questions the relevance of the NC TAR cross-border gas transport criterion.

This argument must be scrutinised from an economic perspective:

According to the Bundesnetzagentur (and the Bundeskartellamt), in their 2017 monitoring report, around **45% of the available gas volume was piped through Germany** and passed to neighbouring European countries in 2016 (770.4 TWh). In comparison, 55% of the available gas volume was used by end customers within Germany (941.3 TWh). Figure 4 shows the corresponding overview of gas supplies and use in Germany in 2016.

**Figure 4 Gas supplies and use in Germany in 2016**




*Source: BNetzA and BKart 2017 monitoring report, p. 289*

It can be seen very clearly that gas transport across Germany in no way represents a negligible size when compared to domestic supply. As the transport task of gas transport across Germany shows a significantly different cost structure to the transport task of supplying domestic consumers, as explained in section 4.2, this is at least a clear indication that both transport tasks should be viewed separately when it comes to determining tariffs.

## 5.3 The standardisation of network tariffs leads to more expensive cross-border gas transport which is not cost-reflective

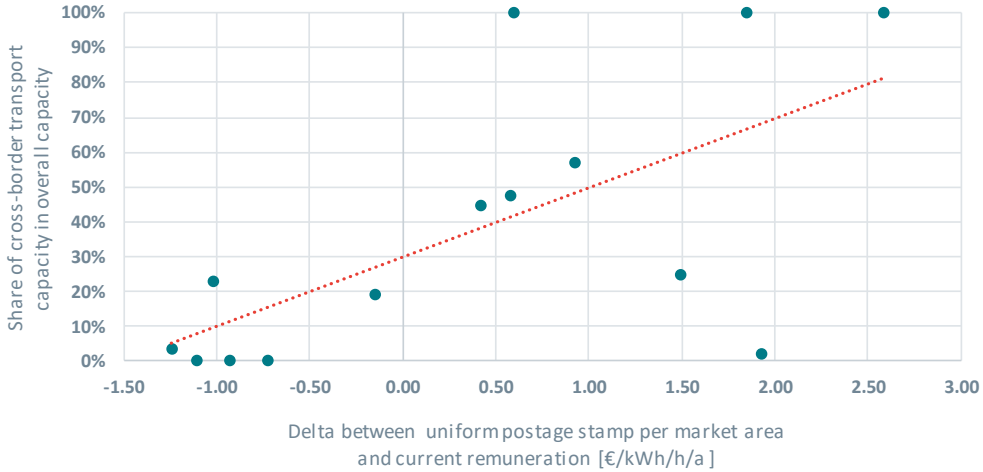
As shown in chapter 4.2, the cost structure of gas transportation varies greatly within the framework of today's network tariff system depending on the supply task. Gas pipelines which are typically used for gas transport across Germany are thus usually larger, which result in a different cost structure.

The introduction of a uniform postage stamp tariff as per REGENT would have the direct result that tariffs for cross-border gas flows would become more expensive than currently is the case. In concrete terms, network operators focused on cross-border gas transport and their customers, who up until now had set appropriate, comparatively low tariffs for their cost structure, would in future cross-subsidise other network operators with a higher proportion of domestic supply tasks.

Figure 5 clearly illustrates this using a comparison of the proportion of cross-border transport of all TSOs and the changed exit network tariffs of all TSOs through the introduction of a postage stamp tariff as per REGENT (based on data for 2018). It becomes clear that the uniform, market-wide postage stamp tariff would result in reduced tariffs for TSOs who only undertake a low volume of cross-border transport

through Germany. In contrast, TSOs with a high proportion of cross-border transport across Germany would tend towards tariff increases.

**Figure 5 Relationship between the proportion of cross-border transport and the changed exit network tariffs implemented by REGENT (for 2018) for each TSO**




*Source: Frontier Economics*

*Note: The capacity proportion of the cross-border transport for each TSP corresponds to that of Figure 2. The change to the exit tariff occurs as a delta between the following two values:*
*i) A uniform postage stamp tariff for each market area which is determined (for 2018) from the sum of forecast revenue from exit capacity bookings of all TSOs in the market area, divided by the sum of the forecast exit capacity bookings, and*
*ii) The current exit tariff in accordance with the publications for the simplified tariff model of the TSOs for 2018 in accordance with art. 30 NC TAR.*
*The dotted red line is a linear trend line based on the methods of the smallest squares.*

This increase in tariffs for the cross-border transportation of natural gas supplies is not accompanied by changed cost structures for network operators. In economic terms, we now have the situation that the incentives for network users change because of the changed prices of network usage, but the network and cost structure upon which this is based does not. This kind of disincentive leads to inefficiencies.

## 5.4 Bookings of cross-border gas transport compete internationally, which is why price increases here can lead to reductions in bookings

The expected clear increase in network tariffs for cross-border gas transport through Germany can have significant effects, as cross-border gas flows through Germany face a particular level of international competition which implies a potentially high level of price elasticity in the demand for such bookings. From this we can assume that an increase in tariffs for cross-border gas transport through Germany will lead to a significant reduction in bookings due to various possible evasive reactions on the part of transport customers.

- **The use of alternative transport routes** – Alternative routes for international gas flows exist, in part, so that to the extent to which cross-border gas transport

through Germany loses the ability to compete with alternative routes, we can expect customers to choose alternative transportation routes. This concerns transport customers who substitute transport routes through Germany with alternative transport routes outside Germany with the same procurement source and the same supply destination (even if this may not be a prompt reaction because of existing long-term contractual relationships).

- **Switching to alternative procurement sources, including LNG** – In the long term, we can expect previous customers of cross-border gas transport to partially turn to alternative procurement sources which require no cross-border gas transport through Germany in order to supply their customers at their destination. The increasing expansion of LNG imports in Europe in particular represents growing competition for pipeline-based gas transport, and in such a situation, tariff increases could potentially weaken cross-border gas transport through Germany even further.
- **Reduction in cross-border arbitrage business** – A source for cross-border gas transport are short-term traders who use price spreads between neighbouring gas markets. This kind of trading business – and thus also the connected cross-border gas transport – will be less profitable in the future with higher transaction costs (in the form of higher network tariffs for cross-border gas transport), whereby a corresponding quantity reduction can be expected.
- **Reduction in demand in target regions** – Not least, we can assume that, to the extent to which increasing costs for cross-border gas transport through Germany lead to price increases in the target regions, we can expect a corresponding reduction in demand in the target regions, which in turn could have negative effects on cross-border gas transport through Germany.

## 5.5 Loss of bookings in cross-border gas transport would have negative effects on end customers in Germany and the European gas market

As a result of the factors outlined above, we should expect a series of negative effects of network tariff increases which do not reflect the costs of cross-border gas transport on the gas market.

- **Increase in tariffs for German end customers to compensate for the lost revenue** – A reduction in gas transport through Germany would lead to a loss of profit contributions of TSOs in Germany. A 20% fall in transport bookings for cross-border gas transport, for example, would require an increase in the uniform postage stamp tariff of around 10% in order to ensure costs are covered in spite of the lost revenue from cross-border gas transport (of approximately EUR 180 million per year). Accordingly, all other network users, and ultimately end customers in Germany, would also feel the effects.
- **Reduced liquidity in European gas trading** – A reduction in international trade to exploit the price spread would also result in a reduction of liquidity in the European gas market, which goes against the aim of strengthening the European Single Market. This would then also affect liquidity at Germany's

trade points, which would result in inefficiencies in the German gas trade, the effects of which would, in turn, be felt by all users.

- **A burden on foreign end customers** – If the increased tariffs from cross-border gas transport have an effect on wholesale prices of neighbouring countries, this would also lead to an undue shifting of burden from German end customers to end customers in neighbouring countries. In this case, gas consumers in neighbouring countries would be disadvantaged by the tariff system changeover in Germany, without this being accompanied by a corresponding cost change. This would mean an undue shifting of the burden from German end customers to end customers in neighbouring countries, which would contradict the fundamental idea behind the European Internal Market.

# 6 COST REFLECTIVE NETWORK TARIFFS ARE POSSIBLE WITHIN A MARKET AREA-WIDE POSTAGE STAMP TARIFF MODEL

In the preceding sections we have shown that the uniform postage stamp tariffs (i.e. market-wide and standardised for all network point types) proposed by BNetzA:

- ignore the relevant requirements of NC Tar and GasNEV to create cost-reflective tariffs;
- do not take into account the great heterogeneity of gas grid transportation in Germany and its cost structures accordingly; and
- as a result, especially with regard to the quantities of cross-border gas transport, lead to distorted price signals and ultimately added costs in the European Internal Market and, possibly, also in Germany.

Correspondingly, in this section we present the following three alternative approaches, which are based on the reference price method of the market area-wide postage stamp tariff proposed by BNetzA. The options have a greater degree of cost reflectivity, , and consequently could be expected to improve efficiency relative to the BNetzA approach. To this end:

- we first formulate, using the preceding analysis as a basis, the requirements that need to be placed on differentiated postage stamp tariffs in order to create a system which reflects the costs (section 6.1);
- we outline an idea of postage stamp tariffs applied by all TSOs in a market area, but differentiated by network point type (section 6.2; as well as section 6.3 in a version with a consideration of the internal points of exchange within the market area); and
- we describe the possibility of a separate discount on dynamic allocable capacity products, which could also prevent cross-border gas transport becoming more expensive in a way which does not reflect the costs (section 6.4).

## 6.1 Requirements for a system of cost reflective tariffs

BNetzA lists numerous reasons for a postage stamp tariff system in its decision, including the high level of transparency and simplicity, as well as the special complexity of the German gas network, which would speak against an implementation of alternative reference prices as intended in the reference price method of capacity-weighted distance, as called for as standard in NC TAR.

However, the preceding analyses have shown that a market area-wide uniform postage stamp tariff system represents an excessive standardisation which leads to tariffs for gas flows (in particular those of cross-border gas transport) deviating substantially from related system costs. This can potentially lead to inefficient

network usage signals, as transport customers (can) no longer take the implications of their network usage into account when making decisions about network use.

This challenge can be seen most notably in the German gas grid, because:

- gas flows with very different supply tasks come together, in particular quantities from cross-border gas transport as well as quantities to supply neighbouring consumers; and because
- when there is a reduction in price-sensitive bookings for cross-border gas transport, there is a threat that the redistribution of costs will be to the detriment of local end consumers (cf. section 5).

If we assume that the fundamental model should include the most extensive postage stamp tariffs possible, additional differentiation can still be made between supply tasks which are characterised by significant cost differences in the system.

As the exact intention of the booking of individual capacities (and thus the system-wide related costs) cannot be identified directly, for obvious reasons, it is therefore better to identify corresponding **"proxy" features** which permit a sufficiently correct allocation of costs – and thus the differentiation of tariffs. For this, we present the following models which use:

- the **network point type**. on the one hand; as well as
- the **booked product** (particularly dynamic allocable capacity) on the other,

as a "proxy".

## 6.2 Alternative 1: Uniform postage stamp tariff specific to network point type

One possibility of ensuring more cost reflective network tariffs would be to carry out an additional differentiation along the different functions of network points.

### Determination of uniform postage stamp tariff depending on network point type

For the "network point type-specific postage stamp model", a uniform tariff creation would – in a way similar to the procedure as per REGENT – also be applied across all TSOs in a market area; however with the difference that the tariffs would be differentiated for the different network point types.

This proposal is based on the plausible assumption that, in many cases, the bookings at individual network points permit conclusions to be drawn on the nature of the flows and the supply task, and thus present the basis for an efficient allocation of costs. For example, we can assume that bookings at cross-border interconnection exit points represent gas flows through Germany, while bookings at exit points to end consumers are most likely to be local supply tasks.

For such differentiation, at least four network point types, would have to be differentiated:

- Entry points (market area interconnection points (MIP), cross-border interconnection points (CIP) and local generation);
- Storage entry and exit (possibly to be treated as two different types);
- Exit points to end consumers and downstream network operators (internal orders; IO); and
- Market area / cross-border interconnection exit points.

For each group of these points, uniform tariffs would then be determined for the whole market area.

### Cost allocation based on forecast capacity

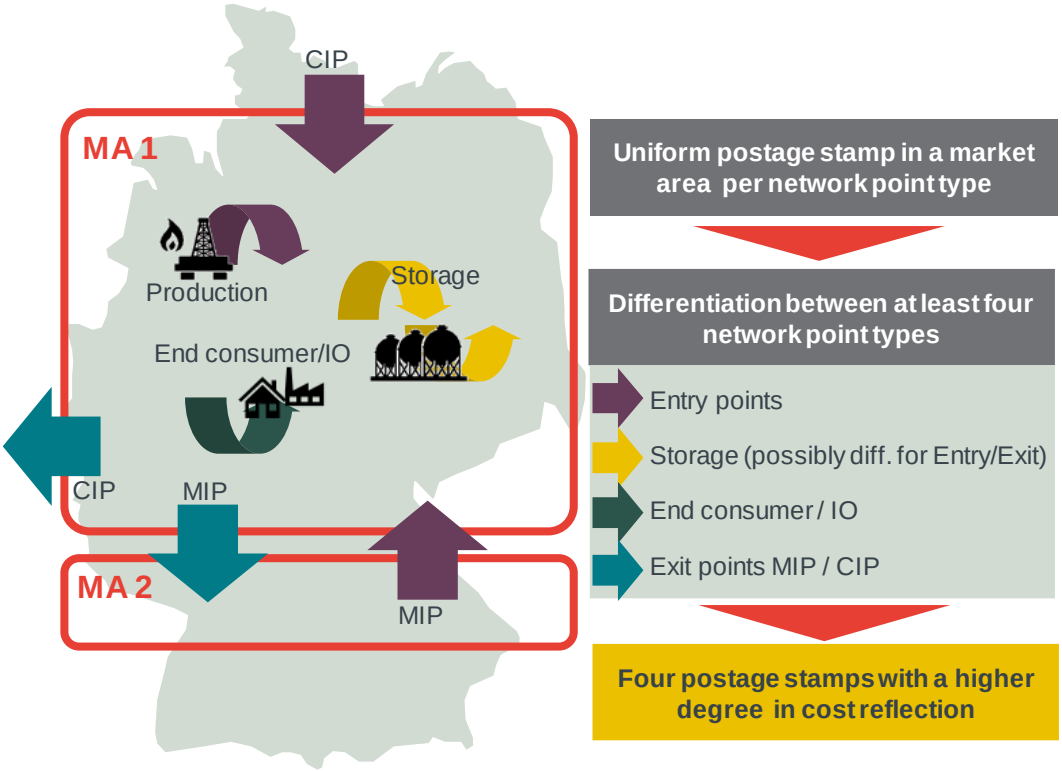
The first requirement for cost-reflective uniform tariffs is an appropriate allocation of costs for the point types. One possible approach would be to break down the costs in advance using the cost allocation "forecast capacity" for the four different network point categories.

In this case, the uniform tariff would be set for each network point type, e.g. as follows:

- In a first stage, the run time and the proportionally weighted capacity corresponding to the four network point categories are added up for each category of TSO.
- Corresponding to the quotas determined from this, the revenue cap of each TSO would be split between the four network point types. This stage would be performed for all TSOs in a market area separately.
- Then, the revenue caps for the individual network point types would be added up for each network point type over all TSOs of the market area and, using the same process, divided by the weighted capacities which were added up. In this way, four different postage stamp tariffs would emerge for the market area which represent a causation-based cost allocation for the four network point types.

**Figure 6** gives a schematic overview of this model.

**Figure 6 Four network point type-specific market-wide postage stamp tariffs – schematic illustration**




### Conclusion: Promising model which reflect costs

Such a model would promise to be a meaningful balance of simplicity (to promote competition and liquidity) and cost reflectivity (for incentives for efficient network usage). Even if no differentiation between entry flows with different underlying cost structures takes place on this basis, and efficiency advantages remain unused in this approach, this still clearly ensures a stronger reflection of costs (and thus efficiency of incentives) of the tariffs for network users. Wherever it is objectively possible, the costs of the tariffs are allocated in terms of causation. Here, however, the simple and transparent differentiation by network use type can preserve a large part of the advantages of simplifying the postage stamp tariff model.

## 6.3 Alternative 2: Network point type-specific market area-wide postage stamp also taking into account internal market area interconnection points

The model of a network point type-specific uniform postage stamp tariff outlined above can be expanded to include a version in which capacity provisions for neighbouring TSOs in the same market area, meaning capacity provisions at market area internal interconnection exchange points (MAIPs), would also be explicitly taken into account in the allocation of costs. This could further improve cost-reflectivity and thus efficiency of the network tariffs, as these capacities often

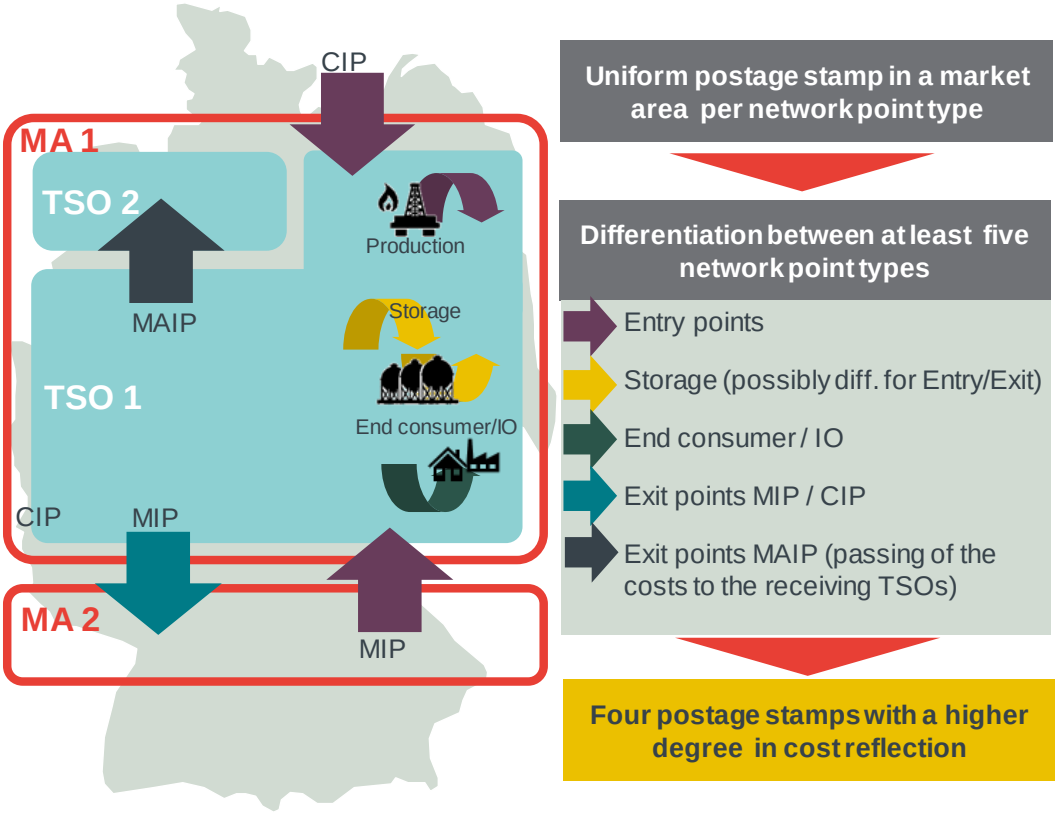
serve to supply end users, and would thus be essentially comparable to internal orders.

Otherwise, the approach would be basically identical with the approach described in the previous section:

- TSOs who provide internal market area interconnection exchange capacities would allocate the capacity-weighted part of their revenue cap to an additional, fifth, category (MAIP exit). With the capacity-weighted distribution of revenue caps of the network point types, the MAIP exit capacities would thus be fully taken into account.
- These revenue cap shares would then be matched to the physical downstream TSOs based on causation and, corresponding to the approach outlined in chapter 6.2, divided up based on the four network point types to be priced (entry points, entry and exit points for gas storage units, exit points to end consumers or downstream network operators as well as cross-border and market area interconnection exit points).
- Accordingly, the revenue cap shares accounted for by capacity provision to MAIPs would be rolled into the market area-wide uniform postage stamp tariff of the final application of the gas, i.e. primarily into the postage stamp tariff for end consumers and internal orders, as well as, to a smaller extent, into the postage stamp tariff for cross-border and market area interconnection exit points (in the case that the market area interconnection point capacities are used for cross-border transport).

**Figure 7** illustrates this variant.

**Figure 7** **Four network point type-specific market-wide uniform postage stamp tariffs taking MAIP into account – schematic illustration**




Compared to the creation of network point specific postage stamp tariffs without taking MAIPs into account, as described above, the version with MAIPs taken into account could subsequently also include the contribution of physical downstream TSOs in providing (above all) end consumer capacity and internal provision in an appropriate and differentiated way. The uniformity of the postage stamp tariff across all TSOs in a market area would be unaffected by this (and, for example, a uniform tariff across a whole market area for the booking of exit capacity to end consumers and downstream network operators would be ensured).

## 6.4 Alternative 3: Discounting of dynamic allocable capacity products

One simplified possibility to avoid the loss of cross-border gas flows on the basis of a tariff increase which does not reflect the costs of cross-border gas transport could consist of increasing discounts on dynamic allocable capacities. A large amount of cross-border gas transport is already booked using these today.[6]

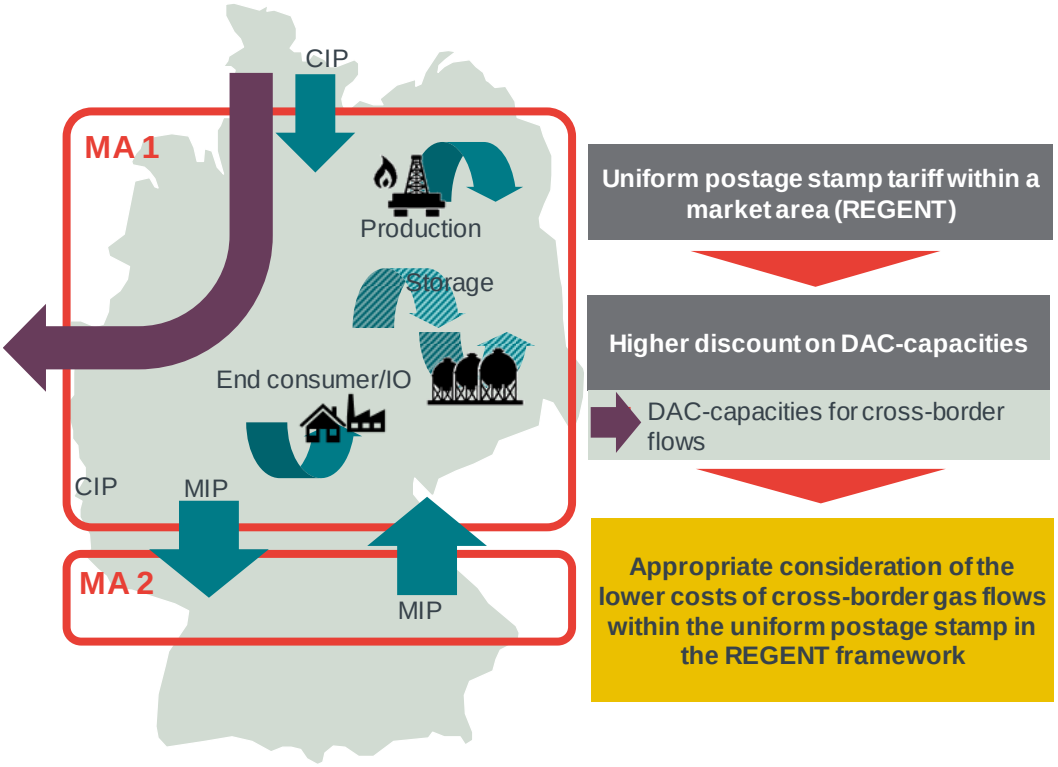
A particular consideration of conditional capacity products in the creation of tariffs is explicitly intended by NC TAR (art. 4 para. 2) and is also implemented in practice.

[6] Here, however, we would have to ensure that inefficient incentives for the migration of virtual trading point quantities to dynamic allocable capacities caused by too high spreads and that no negative liquidity effects at the trading points result.

However, the application of discounts is strongly restricted by the fact that the tariffs for conditional capacity products cannot be lower than the tariffs for interruptible capacity products (cf. REGENT, point 97). As the discount for interruptible products is usually 10 or 11% based on historical interruptions or the minimum discount (in accordance with BEATE), conditional capacity products cannot be discounted to a larger extent.

However, it is improbable that this discount level appropriately reflects the lower costs of cross-border gas transport within the framework of a market area postage stamp tariff. This would require a more substantial discount (see **Figure 8**).

**Figure 8 Separate discounting of dynamic allocable capacity products (DAC) within REGENT – schematic illustration**



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