ENERGY

Key elements paper

Networks. Efficient.
Secure. Transforming.

Bundesnetzagentur

Foreword

In this paper, the Bundesnetzagentur presents key elements and 15 theses on developing the regulatory framework for electricity and gas network operators for the fifth regulatory period, for discussion with industry, civil society and representatives from politics and academia. The focus of this paper is solely on the determination of costs and revenues and on incentive regulation. It does not deal with the more specific aspects of setting tariffs or with access regulation.

The Bundesnetzagentur will be holding an inaugural hybrid meeting on 2 February 2024 and will be opening up the opportunity for feedback until 16 February 2024. The Bundesnetzagentur will consult on and issue determinations in the course of 2025.

The key elements paper represents the starting point for the subsequent detailed and open discussion process.

Contents

A. Introduction

The judgment of the Court of Justice of the European Union (CJEU) of 2 September 2021 (C-718/18) represents a fundamental change for the structure of energy regulation in Germany. The CJEU stated that a detailed legislative regulatory framework structured in advance by the legislature and the regulatory authorities, particularly in the area of network tariff regulation, conflicts with the exclusive powers and independence of the Bundesnetzagentur and the federal state regulatory authorities as provided for in the relevant EU directives. Consequently, exercise of the power to issue ordinances pursuant to section 24 of the Energy Industry Act (EnWG) and application of the ordinances issued on this basis, in particular the Electricity Network Tariffs Ordinance (StromNEV), the Gas Network Tariffs Ordinance (GasNEV) and the Incentive Regulation Ordinance (ARegV), will no longer be possible in the foreseeable future. Under the new legislative framework of the EnWG, the Bundesnetzagentur will lay down on its own responsibility nationally applicable conditions and methodologies for access to the electricity and gas supply networks. This marks a new turning point in German energy regulation, following the introduction of tariff regulation in 2005.

At the same time, this turning point provides an opportunity to review the content of the current regulatory system in light of the significant challenges posed by the energy transition. The following key elements present initial points for discussion that are intended as the basis for a series of determination proceedings to be carried out in 2024 and 2025. The key elements paper therefore represents the starting point for the subsequent detailed and open discussion of the individual issues.

The main task of regulation is to require and promote efficient behaviour in the natural monopoly of network operation by creating incentives for competition. This mandate has been given added significance by the requirements of the energy transition and the cost developments visible in the energy system under transformation.

B. Regulation of networks from 2005 to today

Much has been achieved since the introduction of sector-specific regulation in Germany in 2005. Politicians, network operators, traders, regulatory authorities and the courts have together developed an effective regulatory system that has safeguarded non-discriminatory access for all new players during the energy transition. The introduction of tariff regulation in 2005 marked a turning point, before which there was no specific regulatory control of network tariffs. The "Acceleration Directives" (Directive 2003/54/EC and Directive 2003/55/EC) laid down the first requirements for ex ante regulation of the conditions, including tariffs, for network access. The German legislature subsequently issued provisions on tariff regulation (sections 21, 21a and 23a EnWG), accompanied by far-reaching powers to issue ordinances (sections 24 and 21a(6) EnWG) that were exercised extensively, particularly with the regulations in the StromNEV, GasNEV and ARegV.

Regulation initially focused on implementing the liberalisation of the electricity and gas markets: enabling competition in the generation and trading markets, preventing monopoly profits for network operators, and identifying and eliminating inefficiencies from the past. The aim of the first regulatory phase was to create competitive conditions for network use through cost-based tariff regulation. Up until the end of 2008, maximum prices were approved for each network operator based on individual cost examinations. From 2009 onwards, cost-based tariff regulation was replaced by incentive regulation. Here, the regulator only sets a cap on each network operator's revenue based on efficiency criteria. The need for regulatory supervision and

incentives remains, particularly in view of the sharp rise in costs and the continued monopoly structure of energy infrastructure.

The system has indeed proven to be highly adaptable to new developments. The energy transition has led to more focus on supporting grid expansion, in particular in the electricity sector, with, for example, the implementation of the expansion factors and investment budgets and the introduction of volatile costs and the adjustment of capital expenditure.

C. Taking stock

Regulation has proved successful in many ways for all network operator groups – for the electricity and gas distribution system operators (DSOs) as well as for the electricity and gas transmission system operators (TSOs). This is illustrated by the results of the 2015 evaluation report and (in abbreviated form) the following key figures.

The basis for the largely positive development in the key figures is the overall high level of motivation among the electricity and gas network operators in Germany, which the Bundesnetzagentur would like to highlight at this point.

Investments: Under the current regulatory framework, all network operator groups have invested in their networks at a consistently high or increasing level and have thus actively driven forward the transformation of the energy system.

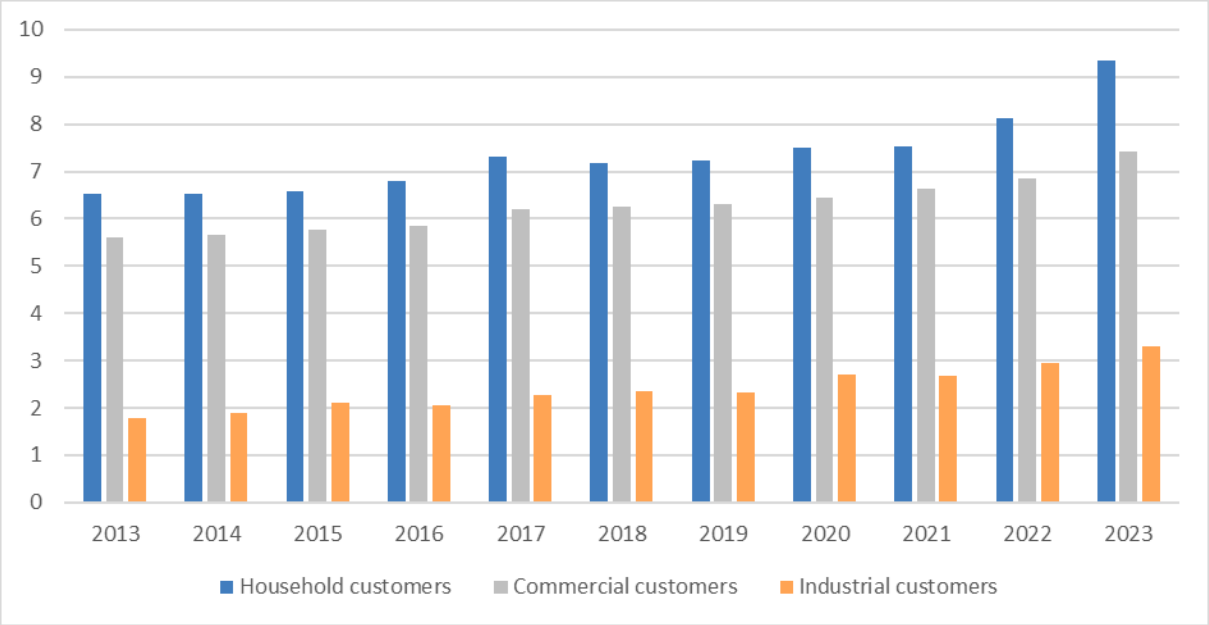
Table 1: Investment volumes from 2013 to 2023 (€mn)

Year	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023 (Target)
Network	Investment volumes (€mn)										
Electricity DSOs	2,851	3,204	3,800	3,701	3,501	3,933	4,337	4,838	4,835	5,733	7,012
Gas DSOs	965	1,155	1,112	1,020	1,031	1,273	1,488	1,674	1,736	1,445	1,451
Electricity TSOs	2,361	2,790	3,279	2,901	2,707	2,954	2,727	3,862	4,677	3,917	4,487
Gas TSOs	1,189	527	496	470	970	1,452	1,333	995	679	820	1,556

Source: Monitoring Reports 2022 and 2023

Network tariffs: The specific network tariffs show an upward trend. In the electricity sector, the specific network tariffs increased in the period from 2013 to 2023 from 6.52 cents per kilowatt hour to 9.35 ct/kWh for household customers, from 5.61 ct/kWh to 7.42 ct/kWh for a commercial customer with a typical annual consumption of 50 megawatt hours and from 1.79 ct/kWh to 3.30 ct/kWh for an industrial customer with a typical annual consumption of 24 gigawatt hours.

Figure 1: Net network tariffs for electricity customers (including meter operation) (ct/kWh)



Source: Monitoring Reports 2022 and 2023

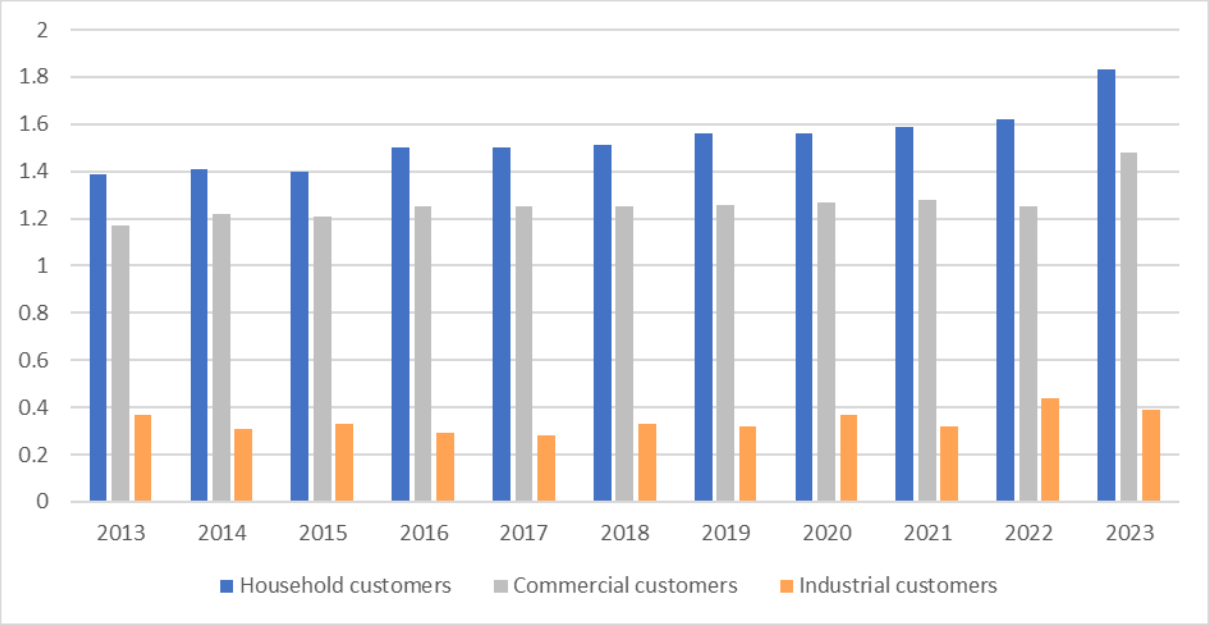
*The network tariffs shown for household customers are average volume-weighted network tariffs.

*The network tariffs shown for commercial and industrial customers are arithmetic tariffs.

The main reasons for the increase in the network tariffs are the expansion and renewal of the networks as part of the energy transition, political delays in grid expansion and the consequent increase in the need for redispatching and feed-in management measures, and the rise in energy prices and the resulting higher costs for "system services".

In the gas sector, the network tariffs increased in the period from 2013 to 2023 from 1.38 ct/kWh to 1.83 ct/kWh for household customers, from 1.17 ct/kWh to 1.48 ct/kWh for a typical commercial customer and from 0.37 ct/kWh to 0.39 ct/kWh for a typical industrial customer.

Figure 2: Net network tariffs for gas customers (including meter operation) (ct/kWh)



Source: Monitoring Reports 2022 and 2023

*Household customers: volume-weighted across all contract categories

The increase in the network tariffs alone is neither an indication of the failure of regulatory efforts nor an indication of inefficiency on the part of the network operators. Rather, the development of the network tariffs reflects the significant level of investment activity in recent years and the general increases in the costs for key input factors for network operation, such as personnel and civil engineering services.

Efficiency: Regulation has required network operators to maintain or increase their level of efficiency. The average efficiency scores for all network operator groups, based on the "best-of-four" principle, are now well above 90%; all groups have made progress (in some cases considerable) compared to the first and third regulatory periods.

Table 2: Average efficiency scores

Regulatory period	1	2	3
Network	Average efficiency scores (%)		
Electricity DSOs	92.2	94.7	94.1
Gas DSOs	87.3	92.1	92.4
Gas TSOs	96.6	98.3	97.9

Source: Bundesnetzagentur calculations

Network operator structure: Despite all the challenges arising from the pressure for efficiency from regulation and the significant level of investment needed, the undertakings were not overburdened; on the contrary, the return framework has met with a very positive response from various parties. There has been no "dying out" of network operators and municipal utility companies, as feared at the start of regulation and liberalisation. Nor has there been consolidation among the DSOs since 2005: there are still about 870 electricity (2006: 876) and 710 gas (2006: 739) DSOs.
These very different network operators need to meet all the increasing requirements and challenges of digitalisation, standardisation and the shortage of skilled workers.

Employment: The regulatory system was also designed in such a way that it ensured permanent and secure jobs in the undertakings and enabled significant job creation. The gas network operators' workforce grew from about 17,000 full-time equivalents in 2006 to about 24,000 in 2021. In the electricity sector, there was an increase from about 31,000 full-time equivalents in 2006 to about 62,000 in 2022. This trend is continuing, at least in the electricity sector, against the backdrop of the challenges of the energy transition, but is facing significant challenges because of the noticeable shortage of skilled workers.

Various mechanisms support the self-provision of network services. At the same time, there are obstacles in the development and modernisation of remuneration structures.

Quality of supply: The central aim of energy policy is a secure supply of electricity and gas. Security of supply has remained at a very high level. This is shown in the system average interruption duration index (SAIDI) figures in the charts below, representing the average length of interruptions in electricity and gas supply in a year.

Figure 3: Electricity: supply interruptions under section 52 EnWG (minutes per year)

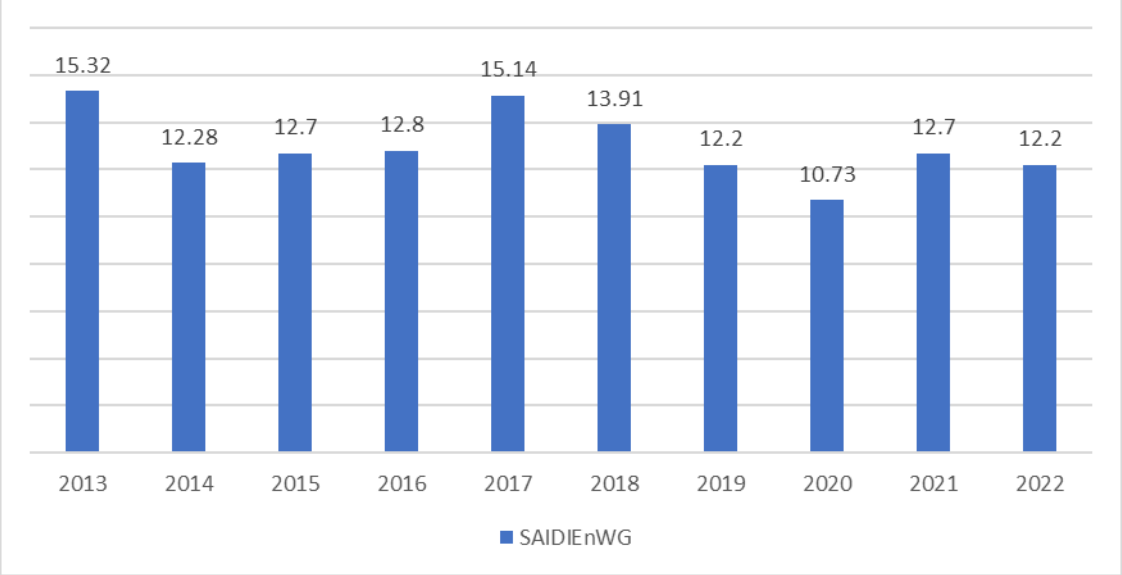
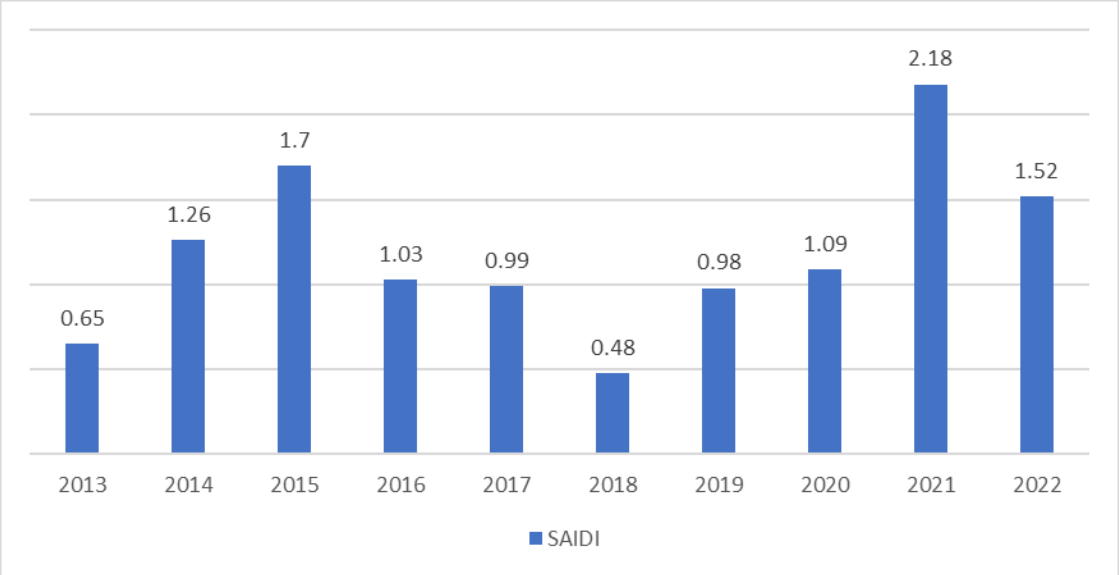


Figure 4: Gas: development in the SAIDI figure (minutes per year)



D. Changes in requirements for regulation

The energy environment has changed enormously for network operators in recent years. This has been accompanied by significant challenges that regulation also has to meet.

- The requirement to decarbonise the German economy is laid down in law. The Climate Change Act requires a reduction in greenhouse gas emissions to the point of net greenhouse gas neutrality by 2045.
- In the electricity sector, this means a significant expansion in renewable electricity generation and an expansion in the use of electricity instead of gas, coal and other fossil fuels in many sectors. The consequence for the networks is the need for another, significant increase in the speed of expansion.
- At DSO level, swifter connection of renewable electricity generation installations and consumer devices, such as heat pumps and electric vehicle charge points, is becoming more important, in particular; this can only be achieved through greater digitalisation and standardisation of processes. These new requirements call for a high degree of "energy transition competence". Energy transition competence means, for example, the ability to monitor and control the distribution networks, further acceleration of grid connection processes and grid expansion, and nationwide digitalisation of market processes.
- The trend in the gas sector is the opposite: in contrast to the electrification process, natural gas will become less important in many sectors, particularly in domestic heat generation but also in gas-based electricity generation and in industry. Parts of the natural gas network at transmission system level and, in individual cases, at distribution system level will be used in future to transport hydrogen. The clear majority of the natural gas network will not be used beyond 2045 and will be decommissioned.

The regulatory challenges can be subdivided/categorised as follows based on the different changes in the tasks of the individual network operator groups:

Electricity TSOs • Significant expansion of the network with associated investments • Determination of requirements under public law • Highly volatile and overall increasing costs for system services • Share of "permanently non-controllable costs" in the total costs of about 90%	**Gas TSOs** • Short-term: redesign of the network to accommodate new transport directions and connect LNG terminals • Medium-term: decommissioning of parts of the network and ... • ... at the same time conversion of parts of the network to transport hydrogen
Electricity DSOs • Expansion and upgrading of the networks to connect and feed-in electricity from numerous renewable energy generation installations as well as to connect and supply energy to numerous additional consumers (such as heat pumps and electric vehicles) with ... • ... very different degrees of impact among the DSOs and at the different voltage levels • Strong need for digitalisation and standardisation • Large number of network operators	**Gas DSOs** • Climate neutrality by 2045 means that the networks will no longer be needed for the majority of the traditional supply tasks • Safe and cost-effective operation must still be guaranteed during the transformation • Retention of parts of the networks for individual customer groups; uncertainty regarding conversion to hydrogen • Orderly transition to a decarbonised energy sector for operators and customers • Large number of network operators in municipalities with or without heat planning in place

The changes in the framework conditions in the energy sector mean that it is necessary to review and adapt the regulatory framework anyway. The CJEU judgment now makes it necessary to place this process of adapting the regulatory framework in a broader context since the Bundesnetzagentur must now develop the regulatory framework and substantiate it in objective determination proceedings on its own responsibility.

The Bundesnetzagentur intends to carry out an extensive consultation before making its decisions.

E. Objectives of regulation

Although the developments in the framework conditions in the electricity and gas sectors are very different, the objectives in adapting regulation are very similar. In future, the objectives will be derived from the European legislative framework (in particular Articles 3, 58 and 59 of Directive (EU) 2019/944 and Article 18 of Regulation (EU) 2019/943) and the German legislative framework under the EnWG (sections 1, 1a, 20 and 21 EnWG) as an expression of the will of society:

Establishing energy transition competence: Acceleration plays a large role in achieving climate neutrality and in expanding, upgrading and digitalising the energy supply networks. Accelerated development, in particular of the electricity supply networks, requires efficient network operators. In future, incentive regulation should create more incentives for accelerated development of the networks and should reward the network operators' energy transition

competence, that is, their ability to implement the energy transition and interact with other players. The functionality of the whole system, characterised by flexible feed-in, in a differentiated market depends in many areas on the network operators acting at a high common technological level. This applies not only to network expansion but also, increasingly, to the technological development of IT systems and data literacy.

Ensuring effective and undistorted competition in the upstream and downstream markets: Supply infrastructure continues to have a functional role in the markets, in particular for the generation and supply of energy. Network unbundling and thus the neutral role of unbundled networks in a market with innumerable players is and will continue to be of importance to the success of the energy transition. The precise aim of consistent unbundling at the various stages of the value chain is to create an economically efficient market outcome. Where direct coordination of different stages of the value chain is essential for the development of efficient structures, this should be achieved through regulatory control.

Security of supply: Security of supply in both the electricity and the gas sector remains one of the main objectives of energy policy and thus also of network regulation.

These universal objectives of regulation become more specific within the framework of cost and tariff regulation:

Affordability: Low-cost energy supply remains a core objective of section 1 EnWG. Regulation must continue to create incentives to maintain and increase **cost efficiency** in order to achieve this objective. Efficiency must remain a criterion for new build projects in the electricity networks and for the future operation and conversion or decommissioning of the natural gas networks. Otherwise, the electricity grid will become unnecessarily expensive during the transformation, and the remaining customers in the natural gas sector would have to bear unnecessarily high costs. Cost pressure can also be a driver of innovation and change.

Transparency and comprehensibility: Regulation must be transparent for it to be comprehensible for investors and network users and to make it possible to raise the capital required for the transformation at as low cost as possible. Transparency goes hand in hand with a manageable degree of complexity of the system, which at the same time increases the practical manageability of the regulatory task, given the resources available to network operators and authorities.

Flexibility in reflecting cost developments: The regulatory system has so far proven to be sufficiently flexible for both the electricity and the gas sector, as well as for both the DSOs and the TSOs. In an increasingly dynamic environment, the regulatory system will still need to be able to accommodate cost increases and decreases with a short-term framework. It must be ensured that this does not increase the complexity of the system even more or conflict with efficiency incentives.

The objectives of security of supply and, in part, cost efficiency have already been addressed by the current system of incentive regulation. In view of the increasing pace of the energy transition, there is a need for further action to speed up the recognition of efficient costs and create incentives for network operators to increase their energy transition competence. Irrespective of considerations about acceleration, the regulatory system should be reviewed to see where it could be made more transparent, simpler and less bureaucratic.

The Bundesnetzagentur is aware of the value of the consistency and reliability of the regulatory framework.

It is necessary to take a close look at maintaining the present harmony in cost regulation for the above-mentioned four network operator groups in view of widely diverging perspectives and tasks.

F. Aspects for a review of the current regulatory framework

This part describes the areas in which the Bundesnetzagentur is considering adapting the regulatory system for **electricity and gas DSOs** and **gas TSOs**.

Where it is appropriate to differentiate between energy sources or network operator groups because of different challenges in the sectors, the text either makes a differentiation or asks for an assessment of the possible needs for differentiation.

With regard to the **electricity TSOs**, it also seems to make sense to diverge from the current regulatory system because of the particular special developments and investment requirements as well as system service tasks for Germany and in the European internal market. However, the considerations on determining costs set out in this paper do not necessarily apply to the electricity TSOs as well. The process of developing the regulatory system for these TSOs will be discussed separately at a slightly later point in time.

The first section that follows deals with the options for adapting the regulatory system for electricity and gas DSOs and gas TSOs, corresponding to the rules currently in place under the ARegV. The subsequent section deals with the aspects of determining network costs, which are currently regulated by the StromNEV and GasNEV.

This document does not deal with the more specific aspects of setting network tariffs. These will be discussed separately so as not to complicate the work processes.

G. Incentive regulation

1. Basic concept

Thesis 1: The basic concept of incentive regulation, involving a cost examination and the subsequent determination of revenue caps for a regulatory period, has proven its worth in both the electricity and gas sectors. It should be applied for electricity network operators at the distribution system level and gas network operators at the distribution and transmission system levels even given the changes in the framework conditions for the fifth regulatory period.

The budget approach taken in incentive regulation, with efficiency benchmarking and the decoupling of costs and revenues, is the central driving force ensuring that network operators act like competing companies, constantly looking for opportunities to optimise, whether in their operations, structural decisions on network expansion or the implementation of digitalisation processes. At the same time, the network operators' actual costs play a relatively major role in the determination of revenues, with their individual situations being taken into account.

Possible alternatives to this model are, on the one hand, a move to an even more cost-oriented system or, on the other, a greater decoupling from the actual costs of network operators (cost-plus vs yardstick approach). However, neither of these options seems appropriate at the present time in light of the generally positive experiences with the current model and the need for a certain reliability in the regulatory framework.

Three quarters of DSOs opt for the "simplified procedure", which involves a cost examination but no participation in efficiency benchmarking. Basically, the plan is to continue the simplified procedure, which makes the process easier for smaller network operators. Possible adjustments to improve efficiency will need to be considered in detail.

Questions:

- Do you agree with Thesis 1? If not, which alternative regulatory systems should be examined in more detail?
- If you agree, does this apply equally to electricity and gas distribution systems? How does this relate to the transformation of the gas network, in particular?
- Do you have any further comments on the future development of the simplified procedure?

2. Length of the regulatory period

Under the current system, the five-year regulatory period means that a network operator's controllable costs are recorded every five years and then used as the basis to determine the revenue cap.

Changes in capital expenditure (capex) can be subsequently reflected in the adjustment of capital expenditure (capex true-up). The idea is basically to maintain this system.

The previously specified revenue cap is adjusted, with a delay, to take account of changes (whether positive or negative) in network operators' individual operating expenditure (opex), giving operators the opportunity to generate profit from improving their efficiency. However, costs that rise or fall during a regulatory period might only be taken into consideration some time later or not at all.

Amid the increasingly dynamic environment of electricity network operators, there are calls for arrangements in which more frequent opex adjustments are necessary and appropriate - namely, when additional growth in opex, especially in staffing or software, which cannot be capitalised, cannot be financed via the revenue cap despite efficiency gains having been made.

The process of decarbonisation is likely to lead to dynamic cost developments in the gas sector as well, which could be either increases or decreases depending on individual circumstances.

Thesis 2: The regulatory period should be significantly shorter so that network operators are able to incorporate major opex developments into the determination of the revenue cap more quickly.

Assuming that procedures were simplified in certain ways (see below), it would be possible to have a regulatory period of three, rather than five, years. Although this would not fully resolve the issue of the time lag in the direct recognition of costs (ie the recognition or non-recognition of costs), the Bundesnetzagentur considers that a three-year regulatory period would represent a suitable compromise between adjusting costs to the speed of expansion more frequently and creating an incentive to improve efficiency.

However, shortening the regulatory period would require speeding up the examination cycle, which in turn would mean that the process of determining costs would have to be significantly simpler. The elements needed to make the process faster are discussed in the following sections.

One simplifying and accelerating factor would be the short regulatory period itself, as short examination cycles reduce the incentive for network operators to exploit the "base year effect". It would thus be possible to examine any "special features of the business year" in a more controlled way. In practice, examinations could rely more on averages and values under commercial law.

However, it would still be necessary to make adjustments during the regulatory period, even if the examination cycle was three years, and the plan would still be for these to be reflected in permanently non-controllable/volatile cost categories. It would still be possible to reflect changes in the costs of capital by means of the capex mark-up model.

Questions:

- Do you agree with Thesis 2?
- How do you judge the effectiveness of shortening the regulatory period as regards (1) a more timely reflection of cost changes in the revenue caps of network operators and (2) the maintenance of the budget approach as an incentive for upholding cost efficiency?
- Which alternative instruments could you envisage to reflect cost changes in the revenue cap at shorter notice and at the same time to incentivise maintaining cost efficiency?
- Which possible adjustments, apart from the proposals included in this paper, would you consider to achieve the operational implementation of a shorter regulatory period?

3. Permanently non-controllable costs and volatile costs

Section 11(2) ARegV contains a comprehensive list of permanently non-controllable cost items that are not subject to efficiency requirements and can be adjusted annually. Incentive regulation also includes the category of volatile costs, which, like the permanently non-controllable costs, can be adjusted annually, but are subject to efficiency requirements.

The Bundesnetzagentur is currently working on the basis that, under the future regulatory framework, there will still be cost items that, departing from the budget approach, can be adjusted annually as permanently non-controllable costs or volatile costs and might not be subject to efficiency benchmarking. However, the list of permanently non-controllable costs has grown over the years, leading to bureaucratic data reporting and adjustment procedures, and the wrong kind of incentives, which need to be examined and removed.

The Bundesnetzagentur will have to clearly define the category of permanently non-controllable costs and volatile costs in a determination in order to differentiate it from other (controllable) costs and justify it.

Thesis 3: The Bundesnetzagentur considers (1) the intrinsic value of a cost category (financial significance of the "amount" of the item) and (2) its exogeneity to be suitable central criteria to derive an objectively justifiable list.

Given the current status of deliberations about the upstream network costs and the avoided network tariffs, the Bundesnetzagentur considers the exogeneity of a cost item to be certain.

Where the exogeneity of a cost item is not clearly identifiable, the homogeneity with which the costs are incurred by different network operators and the volatility of the cost development could be used as supplementary criteria.

A reduced list of permanently non-controllable costs would not have such a significant effect in a shorter regulatory period as it would in the five-year periods used up to now, since cost changes could be incorporated into the system at shorter notice anyway.

Questions:

- Do you agree with Thesis 3?
- What is your evaluation of the criteria to determine the non-controllable cost shares?
- Which cost categories should still be regarded as permanently non-controllable or volatile costs, in your opinion? How do you justify the distinction?

4. General sectoral productivity factor

The Bundesnetzagentur is aware that some parts of the sector have called for the removal of the general sectoral productivity factor (PF) in its original form, partly on the grounds that determining it uses a complex methodology and requires a great deal of effort. In a few cases, doubts have been expressed about whether, following a long period of regulation, it is even possible to record sectoral productivity growth in the network industry beyond the general productivity growth.

On the other hand, it is also possible to view the PF as a standard tool of an incentive regulation system with regulatory periods and cost inflation using a general price index (VPI). Technical progress going beyond the general productivity growth can be shown empirically precisely by using a productivity factor. Where productivity growth can be identified, the PF would mean that it was skimmed off to the benefit of network users and passed on to them.

In any case, the Bundesnetzagentur will examine potential for improvement in the determination of a PF, focusing on the methodology used, the frequency of determining the model, the work involved in the determination and the way in which the VPI-PF term is applied in the formula.

Thesis 4: There is still a sector-specific productivity development in the network industry (technical progress), which needs to be reflected. Methodological adjustments in the determination and application of the PF should be considered.

Questions:

- Do you agree with Thesis 4? Do you have differing evaluations for the sectors of the electricity and gas DSOs? If so, why?
- Which alternative approaches to determine and take account of sector-specific productivity growth and to reflect inflation should be examined?

5. Efficiency tools

Tools to improve cost efficiency are a constituent part of network tariff regulation. Efficiency has to be a criterion, particularly in periods in which network structures are being permanently established for the future. Inefficient network structures are irreversible. This also applies to gas network operators, for which an efficient network operation – even if that means an efficiently organised decommissioning process – still avoids unnecessary cost burdens including in times of transformation with the possible decommissioning of pipelines.

Thesis 5: Efficiency benchmarking for electricity DSOs is a suitable tool and should be further developed on the basis of the existing system for the electricity sector.

A challenge in the gas sector is the fact that networks will move from the traditional supply business to a phase of winding up their operations at different times, which may make them more difficult to compare. During this phase, there will be declines in user numbers that can only be influenced to a limited extent and varied cost developments if some network operators are required to shut down or dismantle their networks and others are not.

Thesis 6: efficiency benchmarking for gas network operators must be carefully developed in future with consideration given to the changes in the gas supply landscape. The applicability of the efficiency benchmarking should be assessed before the start of each regulatory period. If the efficiency benchmarking can no longer be applied, other incentive elements must be drawn on instead.

Questions:

- Do you agree with Thesis 5 and Thesis 6?
- Which alternatives to the established efficiency benchmarking methods do you see in the electricity and gas sectors?
- How do you evaluate the applicability of the efficiency benchmarking for DSOs and gas TSOs for the upcoming fifth regulatory period with the base year 2025?

6. Expansion of quality regulation to create incentives to improve "energy transition competence"

Quality regulation is currently focused on the electricity sector and, within it, on aspects of the quality of supply as shown by the SAIDI. It currently has two main drivers. Firstly, incentives to improve quality arise from the mere fact that network operators publish their SAIDI figure and, in the event that the result is poor, have to justify it. Secondly, there are financial incentives to improve quality because a particularly high quality of supply is rewarded with a bonus, while drops in quality incur a penalty.

Thesis 7: It makes sense to add elements reflecting network operators' "energy transition competence" to the existing quality element in the electricity sector. This would reward those network operators doing a particularly good job at transforming their electricity grids in the course of the energy transition.

A possible first step here would be to find indicators of a network operator's quality of service and energy transition focus. These could be, for example, the speed at which network connections are completed or the frequency with which generating installations or controllable consumer devices are curtailed. In the second step, these indicators could be published for all network operators in order to achieve a greater degree of comparability and transparency. In the third step, financial incentives could be attached to the indicators.

The quality element, expanded to include the indicators of energy transition competence, would have to be set out in the framework determination on the regulatory system. The methodology would, as before, be further developed and designed for the future in a separate decision.

Questions:

- Do you agree with Thesis 7?
- Which parameters do you think should be included in the measurement of the energy transition competence of the network operators? How could they be monetised?
- Could you imagine these kinds of indicator for gas network operators as well? Which measurable parameters do you think would be suitable? How could they be monetised?

H. Determining the network costs

1. Maintenance concept

Pursuant to sections 6 and 6a StromNEV/GasNEV, tangible fixed assets are currently valued using a mixture of general price level accounting (*Realkapitalerhaltung*) and net value maintenance (*Nettosubstanzerhaltung*). For new assets as of 1 January 2006, general price-level accounting is used. For assets capitalised before 1 January 2006 (known as "old assets"), net value maintenance applies until they are fully depreciated. The price indices needed for net value maintenance were ultimately set the same for all network operators in the ordinances following years of legal dispute.

Thesis 8: The mixed system of general price level accounting and net value maintenance should be replaced by a standardised valuation using general price level accounting. Points in favour of this are the increased transparency, the related decrease in the burden of bureaucracy and the reduction in complexity.

Moreover, it would resolve the considerable legal uncertainty caused by the need to continue the index series. The Bundesnetzagentur further considers it relevant that the proportion of new assets (from 2006 onwards) in the electricity sector is already so large that net value maintenance has become far less important.

In addition, the substantive justification for the net value maintenance system – that is, the continued operation of the infrastructure with regular reinvestment of the received, indexed depreciation in new assets – will no longer exist for the gas sector given the decommissioning of large parts of the gas infrastructure in the foreseeable future.

It should therefore be ensured that financial disadvantages that may arise due to the transition are appropriately offset.

Questions:

- Do you agree with Thesis 8?
- Are there objective arguments in favour of keeping the net value maintenance system for electricity and gas distribution networks separately?
- How could possible financial disadvantages arising from the transition to a valuation exclusively based on general price level accounting be determined and offset? Alternatively, should the parts of depreciation based on replacement costs already received by network users be repaid, since there is no replacement?

2. Useful lives

Thesis 9: In the electricity sector, there may be a need for some specific changes in this area. The existing useful lives still need to be determined in a suitable manner and, where necessary, to be added to. A restriction on their ranges or the consistent reliance on a single value are options to be examined.

In the gas sector, by contrast, there is a far greater need for action. In view of the decarbonisation of the energy system, the bulk of the gas networks will not be used for as long as was planned when the original investment decision was made. So that network operators can recover their investments in tangible fixed assets and to avoid network customers being burdened with a sudden jump in network tariffs, it is necessary to adjust the useful lives in such a way that their residual values are near zero by the end of the useful lives. The costs should change in proportion to the number of customers, as far as possible, in order to keep network tariffs as constant as possible over the remaining usage time.

Thesis 10: In the gas sector, (1) a shortening of the useful lives and (2) a transition to a declining balance method of depreciation should be considered for those parts of the network that are not expected to be used for the transport of hydrogen or biomethane. For those networks that will have a subsequent use, on the other hand, it might be possible to keep the current depreciation processes.

The Bundesnetzagentur acknowledges that, in the interests of securing the recovery of investments and the avoidance of leaps in the network tariffs, it is better for the measures accompanying the transformation with regard to the network tariffs to start as soon as possible. However, there is still considerable uncertainty about the actual transformation pathways in the individual networks. An approach that is to be taken in light of the existing uncertainty therefore needs to be found.

One possibility for consideration is whether a rather general depreciation method should be used. This would not focus on individual assets. Instead, a proportion of the tangible fixed assets as a whole would be depreciated as now, using the straight-line method applying a typical useful life, and a proportion would be depreciated using a declining balance method. Network operators could be granted further leeway in deciding how this general depreciation would be parameterised for their network. Possible undesirable incentives with regard to expiring concession arrangements or upcoming network transfers would have to be avoided.

Questions:

- Do you agree with Thesis 9 and Thesis 10?
- How could a general depreciation method look in detail for the gas sector?
- Which considerations would network operators use upon which to base their useful lives/depreciation rates in the gas sector? How could the appropriateness of the chosen parameterisation be proven to the Bundesnetzagentur?
- What is your opinion of restricting the range of imputed useful lives, especially in the electricity sector?
- What challenges would arise during the implementation if the accelerated or declining balance method of depreciation was introduced for the gas networks before the start of the fifth regulatory period?

3. Standardised determination of the cost of capital (WACC)

Under the StromNEV and GasNEV, the return on operationally necessary assets is currently subject to an individual procedure with an intensive examination. In this procedure, the individual equity and borrowed capital items and the individual, actual borrowing costs are determined by the regulator. Excess equity is valued with a low, average interest on capital borrowed known as equity II. This regulatory procedure creates motivation for balance-sheet optimisation and is associated with a great deal of work for those involved. A largely standardised, weighted average cost of capital (WACC) approach is widely used internationally and recognised by investors.

In light of this, the Bundesnetzagentur will examine a move to a standardised determination of the cost of capital using WACC.

One possibility is a model in which the imputed residual values of the assets are determined by deducting the contributions to construction costs received, the network connection cost contributions and the investment contributions and adding the operationally necessary current assets. Under a WACC approach, these assets incur interest with a flat rate of cost of capital. An imputed equity ratio as well as industry-standard rates of equity and borrowed capital return have to be determined for this cost of capital rate.

Thesis 11: Introducing WACC would bring the German system closer to the international standard and the greater degree of standardisation would increase transparency and predictability for investors. Moreover, WACC is an interest cost budget that is decoupled from actual costs, making it independent of the actual financing structure of the network operator. Incentives to create financing structures that are optimised purely for regulatory purposes, often causing high transaction or consulting fees, are therefore avoided. As a result, complexity can also be reduced, making the system significantly easier to administrate.

Questions:

- Do you agree with Thesis 11?
- How do you judge the advantage of a simplified determination of the cost of capital in increasing the acceptance the regulatory system to, for example, investors?
- Do you think there would be a need to specify a minimum equity ratio?
- How should interest paid or earned from long-term provisions be dealt with?

4. Simplifications in the determination of the operationally necessary current assets

In accordance with the current provisions of the StromNEV and GasNEV and the relevant case law, the need for operationally necessary current assets must be determined and justified on an individual basis. In the past, this led to serious legal disputes and an amount of work in examinations that was disproportionate to their actual significance.

Thesis 12: A flat rate could be set to determine the operationally necessary current assets for network operators, lessors and service providers, depending on the relevant application. The level of this rate could be based on, for example, the values that were recognised by the Bundesnetzagentur as operationally necessary in its administrative practice of recent years and were accepted by a large number of network operators without further procedures.

Questions:

- Do you agree with Thesis 12?
- Which aspects should be considered in the determination of eligible current assets?

5. Imputed rate of equity return

The rate of equity return determined for the fourth regulatory period was, and still is, the subject of legal disputes between the network operators and the Bundesnetzagentur.

Ruling Chamber 4 has held a consultation for the equity return of the new assets included in the capex deduction within the fourth regulatory period, which envisages a rate that differs from the rate for existing assets. The current proceedings of Ruling Chamber 4 are not legally or methodologically the subject of this consultation on the adjustment of the regulatory framework. The Bundesnetzagentur expects that the introduction of a (higher) separate rate for new assets, as envisaged in the Ruling Chamber 4 consultation document, will only apply for the rest of the fourth regulatory period and a single rate for existing and new assets will be able to be used again from the fifth regulatory period onwards.

A methodology to determine the rate of equity return for assets will be included in the proceedings to design the new regulatory system for the next regulatory period. The exact methodological framework to determine the new rate of equity return will therefore partially depend on the other parameters of the new regulatory system, such as the length of the regulatory period.

Thesis 13: It is preferable to set a rate of equity return for at least one regulatory period. There should be no annual adjustment in a regulatory system with efficiency benchmarking, particularly in view of the shorter regulatory periods. There should be one standard rate for new and existing assets.

Questions:

- Do you agree with Thesis 13?
- For which periods do you think the rate of equity return should be determined?
- Should the period used to set the base rate be reduced from 10 to fewer years?
- How could it be ensured that the chosen methodology is applied permanently and consistently?
- Should the rate be different for electricity and gas network operators? Which methods could be used to determine sector-specific rates in this case?

6. Trade and corporation tax (section 8 StromNEV and GasNEV)

Trade tax and corporation tax are currently recognised on an imputed basis and charged to customers via tariffs. Many network operators thus have trade and corporation tax payments offset in their revenue caps, even if they do not actually pay these taxes or only pay a small amount (for example in the context of a tax group or utilities combined for tax purposes).

Alternatively, the sums actually paid could also be used as a basis. In that case, the portion of the trade tax paid by the combined utilities or tax group that was attributable to the electricity/gas network operation would have to be determined for affiliated companies.

Thesis 14: Whether the recognition of trade tax should continue to be determined on an imputed basis or should be limited to the proportion of the trade tax actually paid that is

attributed to the network operator should be reassessed in the reorganisation of the regulatory framework.

Questions:

- Do you agree with Thesis 14?
- How can the trade tax attributed to the network operator that is actually paid by the tax group be clearly allocated and determined? What additional effort would this involve?
- If the recognition of the trade tax were limited to the actual amount paid, would there be grounds to continue to grant corporation tax on an imputed basis?
- What sort of "adaptation strategies" on the part of network operators would you expect if the recognition of the trade tax were limited to the actual amount paid?
- Which effects on municipalities or on the level of network tariffs would you expect if the recognition of trade tax were limited to the actual amount paid?

7. Special issue for gas: provisions for decommissioning and dismantling

Within the framework of decarbonisation efforts, network connections will be decommissioned on a large scale. Owing to existing legal obligations, dismantling of network connections and parts of the distribution system infrastructure will also be necessary in individual cases. Decommissioning and, in particular, dismantling will lead to very high costs that will have to be passed on to an ever smaller number of customers during the transformation phase.

Thesis 15: Network operators should set aside provisions for the unavoidable costs of the decommissioning and dismantling of pipelines. The necessary contributions should also be recognised by the regulatory authority as an annually adjustable cost item given the heightened uncertainty over the use of the provisions. This would mean that the expected costs would be anticipated at an early stage and "brought forward" so that they would be borne by the currently larger group of network customers.

At the same time, the provisions would have to be secured in such a way that any proceeds from their release would be paid out to the benefit of network users and not fall to the network operator.

Questions:

- Do you agree with Thesis 15?
- To what extent are you required to dismantle or decommission pipelines? To what extent do you actually expect to be required to use the provisions?

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