Periodic Consultation Document on the Network Code for Tariffs

Gas transmission tariff for DSO's and consumers directly connected to the southwestern natural gas system of Sweden

2024-03-08

Swedegas, Transmission System Operator

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SUMMARY

The Swedish gas transmission system stretches from Dragør in Denmark to Stenungsund north of Gothenburg and has a branch inland to Gislaved in Småland. There is no cross-border transit as all gas injected in the system is consumed domestically. Of the injected gas at the transmission level over 99,5% goes through Dragør.

The Swedish gas market is comparatively small. Annually about 800 million normal cubic meters is transported through the transmission system, but it varies between different years due to temperature and market conditions for CHP plants. There are 5 Distribution System Operators connected to the system and 7 directly connected end consumers.

The suggested reference price methodology (RPM) is the postage stamp method. The postage stamp is easy to understand, and the reference price obtain from it can easily be reproduced. Further it is cost-reflective, non-discriminatory and is assessed to have a positive impact on the Swedish market, compared to RPMs that include distance as a cost-driving factor.

The proposed entry/exit split is 0/100 as it is today. Having entry tariffs at Dragør would not lead to any improvements for the costumers since over 99,5% of the gas is injected at Dragør, which would not change the cost for the transmission costumers for gas transport. Rather the administration cost for the costumers would increase since capacity bookings would have to be made at both entry and domestic exit points.

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1. INTRODUCTION

In EU, a key priority is to connect the Union's energy markets, including natural gas. The purpose of connecting the markets is to establish an internal energy market that can secure the energy supply, achieve socio-economically optimal trade and flows between member states and give consumers the opportunity to buy energy at affordable prices.

On 16 March 2017, the European Commission issued Regulation (EU) 2017/460 establishing a network code on harmonised transmission tariff structures for gas (TAR NC). The purpose of TAR NC is to contribute to market integration, improved security of supply and to promote interconnection between the European gas networks through binding common EU rules. One step to achieve this is to increase transparency in the structure of transmission tariffs and how they are determined. Information about the transmission tariffs must therefore be made public so that network users can better understand how the tariffs are set, and how they have and can change.

According to TAR NC, the national regulatory authority or the system operator of the transmission system must carry out assessments of cost distributions. In the assessments, a comparison between different reference price methods must take place. In this comparison, one of the methods shall be the capacity-weighted distance method (CWD). The applied reference price method must be adapted to the results of a periodic consultation.

According to TAR NC, one or more consultations regarding the proposed reference price method must be carried out by the national supervisory authority or the system operator of the transmission systems in accordance with what is decided by the national supervisory authority.

Energimarknadsinspektionen (Ei) determined in December 2022, dnr 2022-103221, that Swedegas would be responsible for the consultation process. In a subsequent dialogue between Swedegas and Ei, it was decided that this consultation should end no later than in May 2024, i.e. five years after 31 May 2019 in accordance with Article 27.5 of the regulation.

Between March 8 and May 8, 2024, Swedegas is arranging the consultation in accordance with Ei's decision. During this consultation period you will find all consultation material, including this document, on Swedegas website www.swedegas.se.

On April 9, market participants are invited to join a digital consultation meeting that Swedegas arranges via the Microsoft Teams application. During this meeting, Swedegas will explain the context and content of the TAR NC consultation. If you're interested in participating in the meeting, send a declaration of interest to regulation@nordionenergi.se

Views and comments on the consultation material can be sent to regulation@nordionenergi.se throughout the entire consultation period, from March 8 to May 8.

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2. LEGAL FRAMEWORK

Article 27 of the TAR NC reads:

1. Upon launching the final consultation pursuant to Article 26 prior to the decision referred to in Article 27(4), the national regulatory authority or the transmission system operator(s), as decided by the national regulatory authority, shall forward the consultation documents to the Agency.

2. The Agency shall analyse the following aspects of the consultation document:

(a) whether all the information referred to in Article 26(1) has been published;

(b) whether the elements consulted on in accordance with Article 26 comply with the following requirements:

1. whether the proposed reference price methodology complies with the requirements set out in Article 7;
2. whether the criteria for setting commodity-based transmission tariffs as set out in Article 4(3) are met;
3. whether the criteria for setting non-transmission tariffs as set out in Article 4(4) are met.

3. Within two months following the end of the consultation referred to in paragraph 1, the Agency shall publish and send to the national regulatory authority or transmission system operator, depending on which entity published the consultation document, and the Commission the conclusion of its analysis in accordance with paragraph 2 in English.

The Agency shall preserve the confidentiality of any commercially sensitive information.

4. Within five months following the end of the final consultation, the national regulatory authority, acting in accordance with Article 41(6)(a) of Directive 2009/73/EC, shall take and publish a motivated decision on all items set out in Article 26(1). Upon publication, the national regulatory authority shall send to the Agency and the Commission its decision.

5. The procedure consisting of the final consultation on the reference price methodology in accordance with Article 26, the decision by the national regulatory authority in accordance with paragraph 4, the calculation of tariffs on the basis of this decision, and the publication of the tariffs in accordance with Chapter VIII may be initiated as from the entry into force of this Regulation and shall be concluded no later than 31 May 2019.The requirements set out in Chapters II, III and IV shall be taken into account in this procedure. The tariffs applicable for the prevailing tariff period at 31 May 2019 will be applicable until the end thereof. This procedure shall be repeated at least every five years starting from 31 May 2019.

Article 26(1) of the NC TAR reads:

1. One or more consultations shall be carried out by the national regulatory authority or the transmission system operator(s), as decided by the national regulatory authority. To the extent possible and in order to render more effective the consultation process, the consultation document should be published in the English language. The final consultation prior to the decision referred to in Article 27(4) shall comply with the requirements set out in this Article and Article 27, and shall include the following information:

(a) the description of the proposed reference price methodology as well as the following items:

i. the indicative information set out in Article 30(1)(a), including:
   1. the justification of the parameters used that are related to the technical characteristics of the system;
   2. the corresponding information on the respective values of such parameters and the assumptions applied.
ii. the value of the proposed adjustments for capacity-based transmission tariffs pursuant to Article 9;
iii. the indicative reference prices subject to consultation;
iv. the results, the components and the details of these components for the cost allocation assessments set out in Article 5;
v. the assessment of the proposed reference price methodology in accordance with Article 7;
vi. where the proposed reference price methodology is other than the capacity weighted distance reference price methodology detailed in Article 8, its comparison against the latter accompanied by the information set out in point (iii);

(b) the indicative information set out in Article 30(1)(b)(i), (iv), (v);

(c) the following information on transmission and non-transmission tariffs:

i. where commodity-based transmission tariffs referred to in Article 4(3) are proposed:
   1. the manner in which they are set;
   2. the share of the allowed or target revenue forecasted to be recovered from such tariffs;
   3. the indicative commodity-based transmission tariffs;
ii. where non-transmission services provided to network users are proposed:
   1. the non-transmission service tariff methodology therefor;
   2. the share of the allowed or target revenue forecasted to be recovered from such tariffs;
   3. the manner in which the associated non-transmission services revenue is reconciled as referred to in Article 17(3);
   4. the indicative non-transmission tariffs for non-transmission services provided to network users;

(d) the indicative information set out in Article 30(2);

(e) where the fixed payable price approach referred to in Article 24(b) is considered to be offered under a price cap regime for existing capacity:

i. the proposed index;
ii. the proposed calculation and how the revenue derived from the risk premium is used;
iii. at which interconnection point(s) and for which tariff period(s) such approach is proposed;
iv. the process of offering capacity at an interconnection point where both fixed and floating payable price approaches referred to in Article 24 are proposed.

Article 7 of the NC TAR reads:

The reference price methodology shall comply with Article 13 of Regulation (EC) No 715/2009 and with the following requirements. It shall aim at:

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(a) enabling network users to reproduce the calculation of reference prices and their accurate forecast;

(b) taking into account the actual costs incurred for the provision of transmission services considering the level of complexity of the transmission network;

(c) ensuring non-discrimination and prevent undue cross-subsidisation including by taking into account the cost allocation assessments set out in Article 5;

(d) ensuring that significant volume risk related particularly to transports across an entry-exit system is not assigned to final customers within that entry-exit system;

(e) ensuring that the resulting reference prices do not distort cross-border trade.

Article 13 of Regulation (EC) No 715/2009 reads:

1. Tariffs, or the methodologies used to calculate them, applied by the transmission system operators and approved by the regulatory authorities pursuant to Article 41(6) of Directive 2009/73/EC, as well as tariffs published pursuant to Article 32(1) of that Directive, shall be transparent, take into account the need for system integrity and its improvement and 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, and, where appropriate, taking account of the benchmarking of tariffs by the regulatory authorities. Tariffs, or the methodologies used to calculate them, shall be applied in a non-discriminatory manner.

Member States may decide that tariffs may also be determined through market-based arrangements, such as auctions, provided that such arrangements and the revenues arising therefrom are approved by the regulatory authority.

Tariffs, or the methodologies used to calculate them, shall facilitate efficient gas trade and competition, while at the same time avoiding cross-subsidies between network users and providing incentives for investment and maintaining or creating interoperability for transmission networks. Tariffs for network users shall be non-discriminatory and set separately for every entry point into or exit point out of the transmission system. Cost-allocation mechanisms and rate setting methodology regarding entry points and exit points shall be approved by the national regulatory authorities. By 3 September 2011, the Member States shall ensure that, after a transitional period, network charges shall not be calculated on the basis of contract paths.

2. Tariffs for network access shall neither restrict market liquidity nor distort trade across borders of different transmission systems. Where differences in tariff structures or balancing mechanisms would hamper trade across transmission systems, and notwithstanding Article 41(6) of Directive 2009/73/EC, transmission system operators shall, in close cooperation with the relevant national authorities, actively pursue convergence of tariff structures and charging principles, including in relation to balancing.

Article 4(3) of the NC TAR reads:

3. The transmission services revenue shall be recovered by capacity-based transmission tariffs. As an exception, subject to the approval of the national regulatory authority, a part of the transmission services revenue may be recovered only by the following commodity-based transmission tariffs which are set separately from each other:

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(a) a flow-based charge, which shall comply with all of the following criteria:

i. levied for the purpose of covering the costs mainly driven by the quantity of the gas flow;
ii. calculated on the basis of forecasted or historical flows, or both, and set in such a way that it is the same at all entry points and the same at all exit points;
iii. expressed in monetary terms or in kind.

(b) a complementary revenue recovery charge, which shall comply with all of the following criteria:

i. levied for the purpose of managing revenue under- and over-recovery;
ii. calculated on the basis of forecasted or historical capacity allocations and flows, or both;
iii. applied at points other than interconnection points;
iv. applied after the national regulatory authority has made an assessment of its cost-reflectivity and its impact on cross-subsidisation between interconnection points and points other than interconnection points.

Article 4(4) of the NC TAR reads:

4. The non-transmission services revenue shall be recovered by non-transmission tariffs applicable for a given non-transmission service. Such tariffs shall be as follows:

(a) cost-reflective, non-discriminatory, objective and transparent;

(b) charged to the beneficiaries of a given non-transmission service with the aim of minimising cross-subsidisation between network users within or outside a Member State, or both. Where according to the national regulatory authority a given non-transmission service benefits all network users, the costs for such service shall be recovered from all network users.

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3. PREVIOUS PERIODIC CONSULTATION

Ei decided in December 2017 that Swedegas would be responsible for the consultation process of the first periodic TAR NC consultation. This included the execution and publication of cost allocations and proposed reference price methodology, the implementation of consultations, submitting consultation documents to the Agency for the Cooperation of Energy Regulators (ACER), receiving analyses and conclusions from ACER and the publication of information.

Swedegas carried out the consultation between 1 May and 30 June 2018. At the consultation, Swedegas presented its proposal for a reference price method (RPM), implying that an equalized RPM, the so-called postage stamp (PS) method, should be applied. Consultation responses were submitted by distribution network operators (DSOs), gas suppliers responsible for the balance, direct-connected industrial customers and a power producer, a total of twelve stakeholders.

ACER did not consider that cost accuracy was sufficiently ensured with the proposed RPM and believed that evidence must be presented that negative market effects may occur if distance is added as a parameter in the RPM. According to ACER, the chosen RPM was also only partially justified by quantitative evidence. ACER therefore recommended that it should be made clear why a method that does not take distance into account is suitable, or alternatively there should be a change to a method with distance as the driver of the assessment. ACER considered that the current PS methodology was not compliant with the principle of cost reflectivity, mainly because of cross-subsidisation between customers in different regions. Nevertheless, ACER considered that the model could still be justified if it could be shown to reflect a reasonable level of cost reflectivity. Another justification would be if CWD could be shown to result in negative effects for the whole gas market.

ACER commented that a classification of the three services extra area capacity, capacity allocation fee and 24-hour booking fee should take place according to the regulation and that these should be included in the consultation documents. ACER therefore considered that Ei needed to assess whether these services should be classified as transmission services or services other than transmission services.

During the previous consultation it was expected that the Gothenburg LNG Terminal was to be commissioned in 2020, which would create a new entry point into the Swedish network. Therefore, ACER recommended that this facility should be taken into account considering its potential impact on the tariff structure.

ACER noted that the reference price that appears in the calculation did not show network users a correct price for a standard capacity product, which is due to the fact that the entire allowed revenue cap is used in the calculation. ACER therefore recommended that when calculating the reference price, Swedegas should use targeted revenue, which is the part of the permitted revenue that Swedegas intends to cover.

ACER also considered that Swedegas did not provide sufficient information on how forecasted capacity was calculated and recommended Ei to clarify in its final decision how the forecasts are made.

ACER finally commented that the simplified tariff calculator available on Swedegas' website did not provide sufficient support for calculating prices for future tariff periods.

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Following the report from ACER, Swedegas complemented the consultation material with a supplementary investigation in support of the proposed RPM. The analysis was particularly focused on the issues of cost accuracy and market impact. In the supplementary analysis, Swedegas showed that both the PS method and the CWD method led to cross-subsidization with the assumptions made. If the PS method is used, according to the analysis, cross-subsidization took place from Västra Götaland to Halland. The cross-subsidization to Skåne was only marginal. The analysis further showed that a transition to the CWD method would mean increased cross-subsidization between the clusters, where the contribution from Västra Götaland would increase and subsidize customers in both Halland and Skåne. This applies especially to Skåne, which would be subsidized in the event of a transition to the CWD method. In summary, the supplementary analysis showed that the CWD method would increase cross-subsidization on the Swedish gas market and that cost accuracy would decrease. A switch to the CWD method would also lead to a significant increase in market risk.

Key aspects that were lifted in the analysis were that CWD is cost reflective when the natural gas system is homogenous and has a uniform structure, which the Swedish gas system does not since the southern parts both have larger pipe dimensions and significantly more branch lines. Other key aspects were that the pipelines were principally built as one and the same vessel back in the 1980's, that a unform pricing model has been applied since and the southern customers do not subsidize the North because these customers are very large and more than bear their costs.

Swedegas emphasized that the requirements to be met in the decision on the reference price method must comply with the overarching principles of Article 13 of Regulation 2009. This article states that grid access tariffs should contribute to the efficient use of infrastructures and provide incentives for investment, as well as provide the transmission network operator with a reasonable return on its investments. Furthermore, it is emphasized that investments in the gas market are long-term, and customers should therefore not have to face dramatic price changes without there being strong reasons for this.

Upon making its decision on RPM, Ei carried out an own analysis on cross subsidization. Overall, Ei's analysis showed that the PS method can be considered better than the CWD method regarding cost accuracy and minimization of cross-subsidies. Ei's analysis also showed that using the PS method only to a lesser extent leads to part of the network being cross-subsidised. Ei's assessment was therefore that no undue cross-subsidization can be assumed to take place with the proposed RPM, the PS method.

Ei further assessed that the PS method gives network users the opportunity to reproduce the calculation because it is easy to understand, it considers actual costs given the level of complexity of the network and ensures non-discrimination by the PS method resulting in the same price for all customers.

Ei also considered that the extra services extra area capacity, capacity allocation fee and 24-hour reservation fee should be classified as services other than transmission services. The services were deemed to reflect actual costs and were non-discriminatory, objective and transparent.

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4. DEVELOPMENT SINCE THE PREVIOUS CONSULATION

With few exceptions, the Swedish gas market and suggested RPM remains the same as it was during the previous consultation. There have however been a few changes that may be more or less relevant for the scope of the consultation. The changes that Swedegas deem to be relevant are explained below.

4.1 Joint Balancing Zone

During the previous TAR NC consultation, Sweden constituted an independent balancing zone under a derogation (until 1 April 2019) from the EU network code on balancing BAL NC. A new balancing system was therefore needed in Sweden from that date. Denmark had already implemented a new balancing system, which had been mentioned as a good example in "ACER Report on the Implementation of the Balancing Network" from November 2016. A pragmatic solution was mutually decided to create the Joint Balancing Zone between Sweden and Denmark. In this way shippers, that are active in both markets, would need to be in balance in only one system rather than two systems. Creating larger balancing zones was also in line with the ACER Gas Target Model. Since 1 April 2019, Sweden and Denmark now constitute a Joint Balancing Zone in which there is no Interconnection Point between the two countries. During the previous TAR NC consultation, Swedegas argued that introducing an entry fee would be an administrative burden without any meaning, since principally all gas is injected in Dragør anyway. This is even more true now following the implementation of the Joint Balancing Zone.

4.2 No LNG terminal

During the previous consultation it was expected that the Gothenburg LNG Terminal was to be commissioned in 2020, which would create a new entry point into the Swedish network. Therefore, ACER recommended that this facility should be taken into account considering its potential impact on the tariff structure. Despite the contrary recommendation from Ei, the Swedish government decided in 2019 to reject Swedegas' application for concession for the planned LNG terminal with reference to the national climate policy and the goal that Sweden will have net zero emissions of greenhouse gases by 2045 at the latest. The LNG terminal is thus no longer in scope for the Swedish transmission system or for this consultation.

4.3 Energy-based billing

In 2018, when the previous consultation was held, all settlements and billings in the transmission grid were volume based and measured in terms of Nm3 or Nm3/h. As a consequence, parameters subject to consultation such as forecasted capacity levels, reference price etc. were also expressed in these units. Since the beginning of October 2019 (beginning of gas year 2019/2020) Swedegas has however changed to energy-based settlements and billings based (in lower calorific value). In the present consultation, forecasted capacity will instead be expressed in terms of kWh/h/y. This has no practical implication other than that presented values are differ in size from the previous consultation.

4.4 Storage no longer mothballed

During the previous consultation the capacity for the storage facility Skallen was forecasted to be zero for both injection and withdrawal since it had mothball status. Skallen is now back in operation and influence network capacities with minor withdrawals and injections. In comparison to the overall consumption and injection from Dragør, the influence of Skallen is however negligible. The proposal is still to retain the discount of 100% at entry/exit from/to the storage.

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4.5 Non-transmission services

In the previous consultation, ACER noted three services for which tariffs were set that were not included in the consultation document. These were:

- 'Extra Omradeskapactiet' (extra area capacity fee).
- 'Kapacitetstilldelningsavgifter' (capacity allocation fee for summer and winter periods).
- 'Dygnsbokningsavgift' (capacity allocation fee for daily capacity products).

Since then, Ei has decided that these services constitute non-transmission services. Ei has also assessed that these services are deemed to reflect actual costs and are non-discriminatory, objective and transparent. According to Ei's decision, the services benefit the net users who use them and the criteria in TAR NC Article 4.4 are thus fulfilled.

During the previous consultation charges for the non-transmission service extra area capacity was not included in the consultation material, but was based on each customer's highest withdrawal and expressed in terms of SEK/kWh/h. Today, charges for this service are instead based on consumed energy.

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5. THE SWEDISH TRANSMISSION SYSTEM AND GAS MARKET

The Swedish gas transmission system stretches from Dragør in Denmark to Stenungsund north of Gothenburg and has a branch inland to Gislaved in Småland. There is no cross-border transit as all gas injected in the system is consumed domestically. Of the injected gas at the transmission level over 99,5% goes through Dragør, the point connecting Sweden to the transmission system in Denmark. The remaining injection consists of biogas that presently comes from a reverse-flow point in Trelleborg situated in southern Sweden and from Vessige further north, in Halland. Apart from these points gas can be injected from the Skallen storage facility. There is no LNG entry to the transmission system. See Figure 1 for a map depicting the Swedish transmission system.

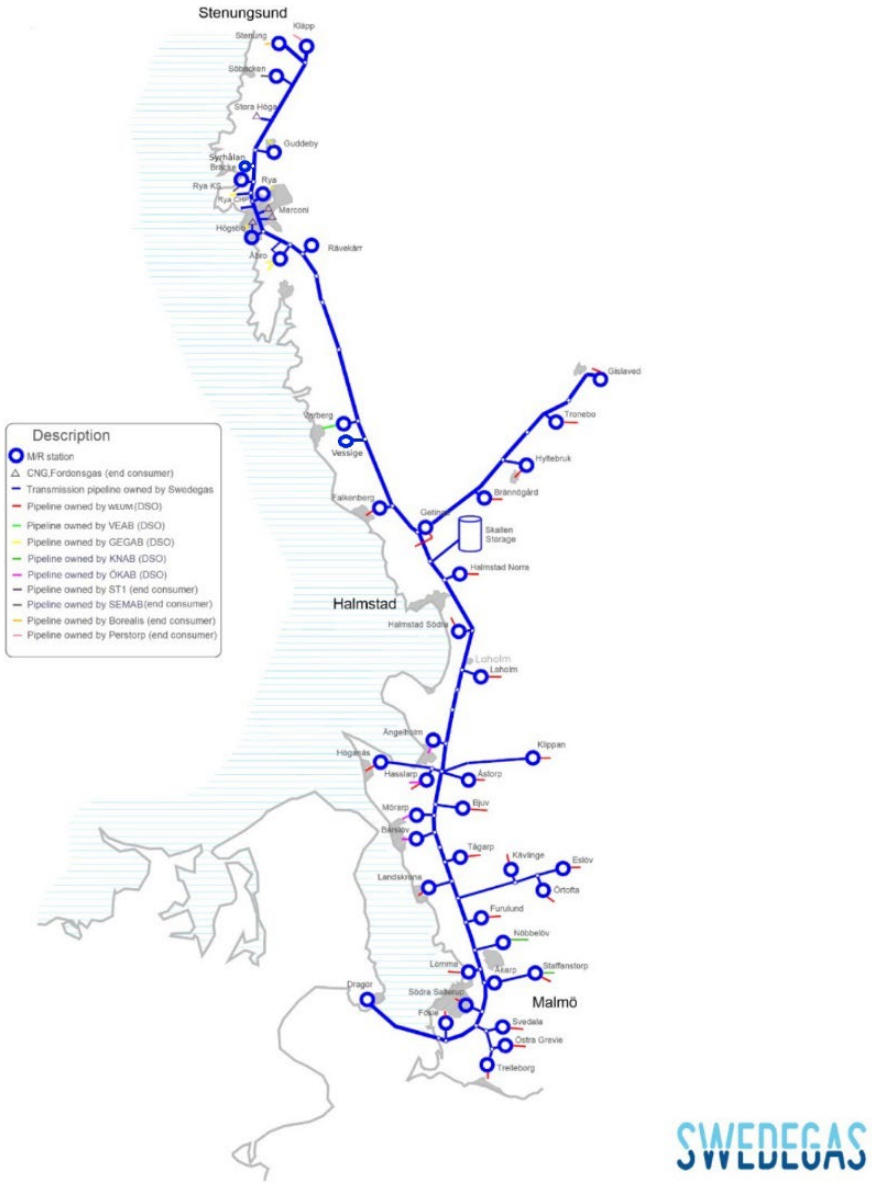

Figure 1 Swedish transmission system

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Annually about 800 million normal cubic meters is transported through the transmission system, but it varies between different years due to temperature and market conditions for CHP plants. There are 5 Distribution System Operators (DSOs) connected to the system and 7 directly connected end consumers. The directly connected end consumers are located in the northern part of the system. The Swedish transmission system is wholly owned by Swedegas, the sole Transmission System Operator in Sweden.

Due to provisions in the Swedish Natural Gas Act all entities holding domestic connections to the transmission system pays for the transport of gas though the Swedegas transmission tariff. This is contrary to many EU member states where the transport is booked and paid for by shippers. Consequently, Dragør is not subject to booking procedures by users and therefore not considered as an interconnection point as defined in network codes.

The supply of gas to end users are provided by the gas suppliers. The gas supplier must, for each offtake point, appoint a balance administrator. The latter is financially responsible for ensuring that the offtakes have a corresponding supply. The gas supplier can either accept the role as balance administrator themselves or appoint another company.

The gas year stretches from October 1st to September 30th. The yearly contracted capacities are therefore booked in the last days of September for the upcoming gas year. An ex-ante revenue cap regime was introduced in 2015 and each regulatory period is 4 years. The current regulatory period covers the years 2023-2026 and the next one will cover the years 2027-2030.

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6. INFORMATION ON THE PARAMETERS USED IN THE PROPOSED RPM

Art. 26(1)(a)(i), Art. 30(1)(a)

6.1 Description on the proposed reference price methodology

Art. 26(1)(a)

6.1.1 Reference price method

The suggested RPM is the PS method. In the PS method, the transmission service revenue is divided with the forecasted contracted capacity to give a reference price, see Equation i.

$$\frac{transmission\ service\ revenue}{forecasted\ capacity\ bookings} = reference\ price$$

Eq. i

The PS method leads to a uniform reference price throughout the system. The cost driver of the PS method is the forecasted contracted capacity.

The PS is easy to understand, and the reference price obtain from it can easily be reproduced and predicted. Further it is sufficiently cost-reflective and non-discriminatory. These properties are explained in chapter 10.

The most decisive factor for choosing the PS method is that it gives uniform reference prices which, in turn, is non-discriminatory, sufficiently cost-reflective prevents undue cross-subsidization and is assessed to have a positive impact on the overall market volumes, to the benefit of the whole market. The counterfactual RPM for example, the capacity weighted distance method (CWD), would imply an uneven distribution of reference prices where some parts of the market have very low reference prices and some parts unreasonably high reference prices. An RPM that results in too high reference price for parts of the market will have a negative impact on the market as a whole, which would lead to a decrease in market volumes and higher reference prices for the remaining transmission costumers.

A comparison between the reference prices from the PS method and the CWD method is described in chapter 11. There it is seen that the CWD method leads to large differences in reference price, which is not a surprising result since the sole entry into the Swedish transmission system is in the southern part.

None of the secondary adjustments listed in Art. 4(4) are proposed to the RPM.

6.1.2 Entry/exit split

Art. 26(1)(a)(i), 30(1)(a)(i-ii)

The proposed entry/exit split is 0/100 as it is today. Having entry tariffs at Dragør would not lead to any improvements for the costumers since over 99,5% of the gas is injected at Dragør, which would not change the cost for the transmission costumers for gas transport. Administration costs for the costumers would however increase, since capacity bookings would have to be made at both entry and domestic exit points. Also, having entry tariffs would make a transition to a shipper model and a complete market reform necessary. Considering how the

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Natural Gas Act is written, it would also have to be updated to make an entry/exit-split other than 0/100 compliant with Swedish law.

6.1.3 Capacity/Commodity split

Art. 26(1)(a)(i), 30(1)(a)(iii)

No commodity tariffs are proposed, the proposed split is 100/0. The most cost-driving factor for transmission services is capacity, which is why this split is proposed.

6.2 Justification of parameters used that are input to the RPM and the CWD calculation

Art. 26(1)(a)(i), 30(1)(a)(i-v)

The parameters used as input to the PS and the CWD methodology are:

- Allowed revenue
- Forecasted capacity
- Entry/exit split
- Distance (CWD only)

The allowed revenue is based on the technical aspects of the transmission system, since it shall cover reasonable costs give reasonable return on the capital required to conduct the transmission business. The National Regulatory Authority (NRA) of Sweden, Energimarknadsinspektionen (Ei), decided on Swedegas' allowed revenues for the years 2023-2026 in October 2022. Following an appeal process this decision has been revised with a new revenue cap decision in December 2023. Allowed revenues during the tariff period will therefore be based on Ei's revenue cap decision from December 2023, covering the years 2023-2026.

The forecasted contracted capacity for the tariff period 2024/2025 is aggregated per offtake area that are seen below in Figure 2. The forecast is based on the historical demand on customer level and takes into account trends and any known expected changes in the consumption. The forecasted contracted capacity is expressed as a yearly firm contract. It is 1 141 498 kWh/h/y for the tariff period.

The capacity for the storage is forecasted to be 0 kWh/h/y for the tariff period for both injection and withdrawal, since capacities are negligible, intermittent and hard to forecast. The proposed RPM also implies a 100% discount for storage facilities. The small injection is supplied by two points, Vessige, in Halland, that is forecasted to 1005 kWh/h/y and the reverse flow point in Trelleborg, Södra Skåne, that is forecasted to 4 972 kWh/h/y.

The proposed entry/exit split is 0/100 as it is today. For comparison purposes the resulting reference price for 50/50 entry/exit split is also presented in chapter 11.

The distance between the entry and exit points is also a parameter in the CWD methodology. The distances are based on pipe lengths. To simplify the CWD calculation, the exit points are aggregated into different offtake areas according to Figure 2 below. The distance between the entries and the offtake areas is calculated as the mean distance between the entry and each exit point in the area.

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Figure 2 Different offtake areas of the transmission System. The clustering is aggregated according to the same areas.

6.3 Structural information of the transmission network

Art. 26(1)(a)(i), 30(1)(a)(iv-v)

The transmission system on the western coast of Sweden stretches between Dragør in Denmark to Stenungsund north of Gothenburg with a branch inland to Gislaved in Småland.

There are 44 metering and regulation stations throughout the gas the 601 km long transmission system. At these stations, the gas is measured, and pressure is reduced before entering the distribution system, where it is distributed to the end-users.

The gas system is built up of steel pipelines with a polyethylene coat to protect against corrosion and also have an active corrosion protection to ensure that the pipes do not rust. The dimensions of the pipes are set and checked to ensure a gas pressure of 80 bar. The pipeline diameter from Denmark to Ängelholm is 600 mm and from Ängelholm to Gothenburg it is 500 mm. From Gothenburg to Stenungsund the pipeline diameter is 400 mm. The diameter of the branch pipeline from Halmstad to Gislaved is 500 mm. The pipelines in the gas system are laid underground with a minimum soil cover of 1 metre. Posts have been placed to mark the route taken by the pipeline.

A map of the transmission system with connections to directly connected costumers and marked TSO-DSO interfaces can be seen in Appendix I. Note that the relative distances and locations are approximate in the map.

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7. Proposed adjustments for capacity-based transmission tariffs

7.1 Proposed discounts at entry/exit points from and exit points to storage facilities

Art. 26(1)(a)(ii), 9(1)

The proposal is to retain the discount of 100% at entry/exit from/to the storage.

7.2 Proposed discounts at entry points from LNG facilities

Art. 26(1)(a)(ii), 9(2)

N/A, no LNG entry in Sweden.

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8. INDICATIVE REFERENCE PRICE SUBJECTED TO CONSULTATION

Art. 26(1)(a)(iii)

The indicative reference price is 404 SEK/kWh/h/y

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9. COST ALLOCATION ASSESSMENT

Art. 26(1)(a)(iv), Art 5

The cost allocation assessment aims to evaluate whether any cross subsidisation occurs between transit and domestic consumption. Since there is no possibility to transit gas in Sweden there are no prerequisites and neither any purpose for carrying out such an analysis.

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10. ASSESSMENT OF THE PROPOSED REFERENCE PRICE METHODOLOGY

Art. 26(1)(a)(v)

10.1 Reproduction of the calculation of the reference price and accurate forecast

The PS method is easy to understand, reproduce and forecast. It consists of only three input parameters: the allowed revenue, the entry/exit split and the total forecasted contracted capacity expressed as firm one-year capacity.

The allowed revenue is decided by Ei and is fixed for the whole regulatory period. The entry/exit split is also fixed and would only change following a public consultation. The forecasted contracted capacity for the whole system is available on an aggregated level. Since these parameters are simple and public it also allows the transmission customers to do their own predictions of the evolution of the reference price.

The reference price for gas year 2024/2025 is calculated according to the method described below.

The allowed revenues for the regulatory period covering years 2023-2026 is 1 873 MSEK in the monetary value of 2022. This revenue cap includes all regulated revenue stemming from the business, both transmission and non-transmission services. Revenues can be distributed freely over these four years, but when calculating the revenue cap, Ei has assessed Swedegas' annual costs according to Table 1 below.

Table 1*: Annual revenue cap for Swedegas in monetary value of 2022 (MSEK)*

Year	**2023**	**2024**	**2025**	**2026**
Revenue cap	474	472	470	457

As stated above, this revenue cap is defined in the monetary value of 2022. Recalculated in nominal monetary value, taking into account known index developments to date and a future development of +2% per year onwards, the expected revenue cap can also be expressed according to Table 2 below.

Table 2: *Expected annual revenue cap for Swedegas in nominal monetary value (MSEK)*

Year	**2023**	**2024**	**2025**	**2026**
Revenue cap	560	569	577	573

Just as in the previous periodic consultation, due to market constraints, Swedegas is not expecting to fully utilize the revenue cap. As a result of this, Equation i needs to be complemented with a factor equal to Swedegas' intended revenue cap utilization rate according to Equation ii below.

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$$reference\ price = \frac{revenue\ cap \times cap\ utilization\ rate}{forecasted\ capacity\ bookings} = \frac{intended\ revenue\ recovery}{forecasted\ capacity\ bookings}$$

Eq. ii

Part of the intended revenue recovery will be earned from non-transmission services. This revenue must be withdrawn from total intended revenue recovery to derive intended transmission service revenue. The reference price is thus calculated according to Equation iii below.

$$reference\ price = \frac{intended\ revenue\ recovery - non\ transmission\ service\ revenue}{forecasted\ capacity\ bookings} = \frac{intended\ transmission\ service\ revenue}{forecasted\ capacity\ bookings}$$

Eq. iii

During the tariff period, Swedegas intends to utilize 89 % of its revenue cap, implying total regulated revenues of 512.6 MSEK. Out of these, 461.2 MSEK will constitute transmission service revenues. 51.4 MSEK revenues will constitute non-transmission service revenues.

The entry/exit split is 0/100.

The bookings forecasted for gas year 2024/2025 expressed as a firm booking with a duration of one year is 1 141 498 kWh/h/y.

According to the Equation iii, 404 SEK/kWh/y/h for all exit zones is received. Please see the calculation sheet Appendix II for calculation details.

10.2 The proposed RPM and the actual cost incurred for the provision of transmission services considering the level of complexity of the transmission network.

The three variables used in the PS method are analysed separately to determine the cost reflectivity of the RPM. The variables are allowed revenue, forecasted contracted capacity and cap utilization rate.

<u>Allowed revenue</u>

According to chapter 6, section 10 of the Swedish Natural Gas Act, the revenue cap, which the allowed revenue is based on, shall cover reasonable costs to conduct transmission business and

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give reasonable return on the capital required to conduct the transmission business, wherein the complexity of the system is reflected.

Booked capacity

The other variable in the postage stamp method is the forecasted contracted capacity. It is also a cost-driving factor which is accounted for in the proposed reference price model.

Cap utilization rate

Because of the small natural gas market in Sweden and lack of transit revenues, Swedegas currently assesses that fully utilizing the revenue cap would lead to a decrease in market volumes, followed by higher tariffs to compensate for the lower flows. Swedegas wants to avoid this vicious circle that may have negative impacts on the gas market as a whole. A necessary consequence of this circumstance is that the reference price formula needs to be complemented with a factor that equals Swedegas' intended revenue cap utilization rate, even though this reduces transparency and cost reflectivity. This is however not a unique circumstance for the proposed RPM since it would apply to other RPM's as well as long as the revenue cap isn't fully recovered.

Entry/exit split

The proposed entry/exit split is 0/100. Not having any entry tariffs in Dragør is cost reflective since almost all gas that is introduced into the Swedish transmission grid must pass through Dragør anyway. Any other split would not lead to any changes in cost distribution between the transmission costumers, just more administrative work.

10.3 How the RPM ensures non-discrimination

The parameters for determining the reference price using the PS method are booked capacity and intended revenue recovery. These parameters are objective, and the PS method results in the same reference price for all transmission customers. The proposed RPM is non-discriminatory since it addresses a comparable situation for all customers in the same way.

The PS method, and any tariff elements stemming from it, does not subject the domestic transmission costumers to different terms depending on what kind of costumer they are (i.e. directly connected costumer, industrial costumer, DSO) or how much capacity they utilise. The reference price is the same for all users and the cost for transport is proportional to the capacity booked, i.e. no small consumers cross subsidise large consumers.

10.4 Reasonable degree of cost reflectivity and no undue cross-subsidisation

The Swedish transmission system does not transit gas, therefore no cross subsidisation occurs between cross system, regardless of RPM.

The question of cost-reflectivity and cross-subsidisation within the Swedish transmission system was discussed in the previous periodic consultation, where ACER considered the cross-subsidisation between users within Sweden relevant. ACER noted that cross-subsidisation could be justified in case Swedegas provided adequate quantitative evidence supporting the choice of an RPM that does not include distance as a cost driver. Therefore, both Swedegas and Ei engaged in their own separate analyses on cost-reflectivity and cross-subsidisation, particularly comparing the proposed PS methodology to the counterfactual CWD. Since the transmission system is practically unchanged since then, these analyses are still valid and just as relevant today still. The

analysis carried out on behalf of Swedegas is included as Appendix IV and the one carried out by Ei is included as Appendix V.

Swedegas concluded that a shift from the PS to the CWD methodology was unlikely to increase cost reflectivity in any meaningful nor predictable way because of three reasons that all underline that distance is a poor proxy for the relevant cost drivers in the Swedegas transmission system.

First, almost the entire transmission system was rolled out during the 1980s and was designed as a first step of a much larger transmission system for natural gas in Sweden that never materialised. A regional grid, only comprising Skåne-Halland, was not considered. From an international perspective, the Swedish transmission system is very small, and tariffs are high. From a network economics perspective, it is not relevant to consider the northern region of Västra Götaland (VG) as anything else than an integrated part of the original and indivisible network since the installed capacity in the South necessitated a certain volume to break even.

Second, distance is a poor proxy for the actual cost drivers in the Swedegas transmission grid. Capex, the principal cost driver, is not proportional to distance since the bulk (61 percent) of the regulatory asset base (RAB) is in Skåne, the southern off-take area of the grid, while the average distance to the entry point is only about one quarter of the distance compared to VG. The northern area of the grid, VG, is furthest away from the entry point and represents only 17 percent of RAB. An important reason for the discrepancy is that Skåne and Halland, in contrast to VG, have a larger share of branch lines which only serves local customers and hence have no value for customers in VG. Another important reason is that since all gas is fed from one single injection point in the south, less and less gas is transported through the pipe the further north you come. For this reason, pipeline diameters gradually decline going from the south to the north, implying cheaper and cheaper piping costs.

Third, Swedegas showed that if each region bears its own costs for branch lines under the current PS regime, VG covers the full cost of the trunk lines in VG and, in addition, the relevant share of the trunk line costs in Halland and in Skåne relative to its usage of the trunk lines. With a CWD, however, VG would cross-subsidise trunk lines in both Halland and Skåne to a large extent. A shift to a CWD methodology would therefore increase cross-subsidisation, not reduce it. The current PS method was therefore assessed to be reasonably cost reflective, and more cost reflective than CWD.

Overall, Ei's analysis showed that the PS method can be considered better than the CWD method with regard to cost reflectivity and minimization of cross-subsidies. Ei's analysis also showed that using the PS method only to a lesser extent leads to part of the network being cross-subsidised. Ei's assessment is therefore that no undue cross-subsidization can be assumed to take place with the proposed reference price method, the PS method.

Ei further concluded that the PS method gives network users the opportunity to reproduce the calculation because it is easy to understand, it takes into account actual costs given the level of complexity of the network and ensures non-discrimination by the PS method resulting in the same price for all customers.

11. COMPARISON WITH THE CWD METHOD AND INDICATIVE REFERENCE PRICES

Art.26(1)(a)(vi)

11.1 Indicative reference prices at each entry and exit point

In this chapter the indicative reference prices for the capacity weighted distance method is presented. Results are shown for both 50/50 entry exit split, which is the contrafactual entry/exit split, as well as results from 0/100 entry/exit split to show the indicative reference prices for the proposed entry exit split.

Results from 50/50 entry exit split

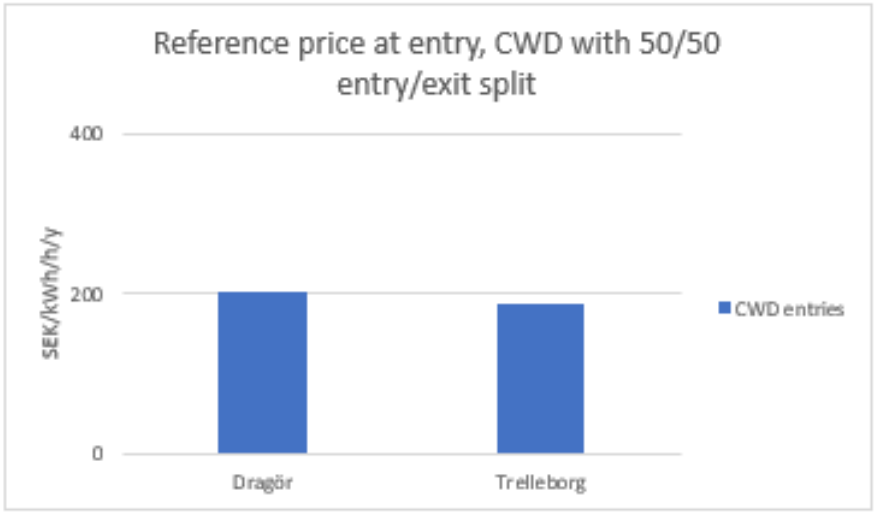

Figure 3. Reference price at entry from CWD-calculation with 50/50 entry/exit split

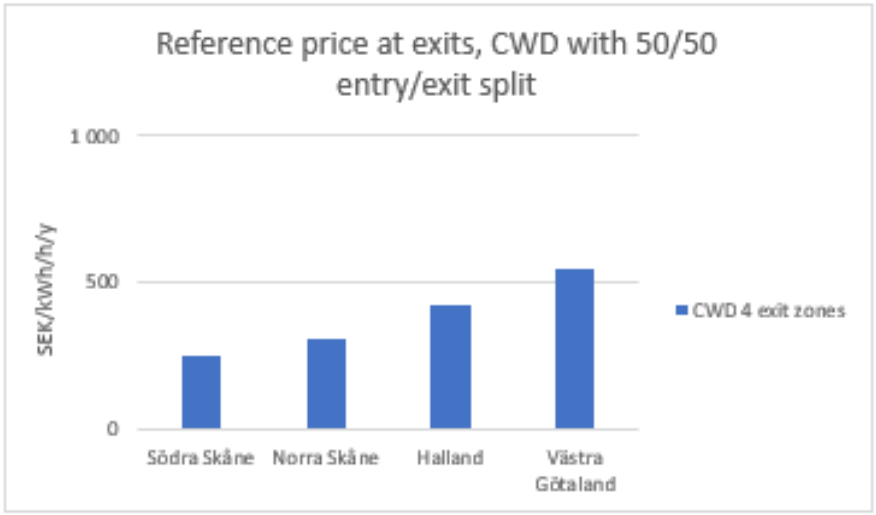

Figure 4. Reference price at exits from CWD-calculation with 50/50 entry/exit split

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Results from 0/100 entry exit split

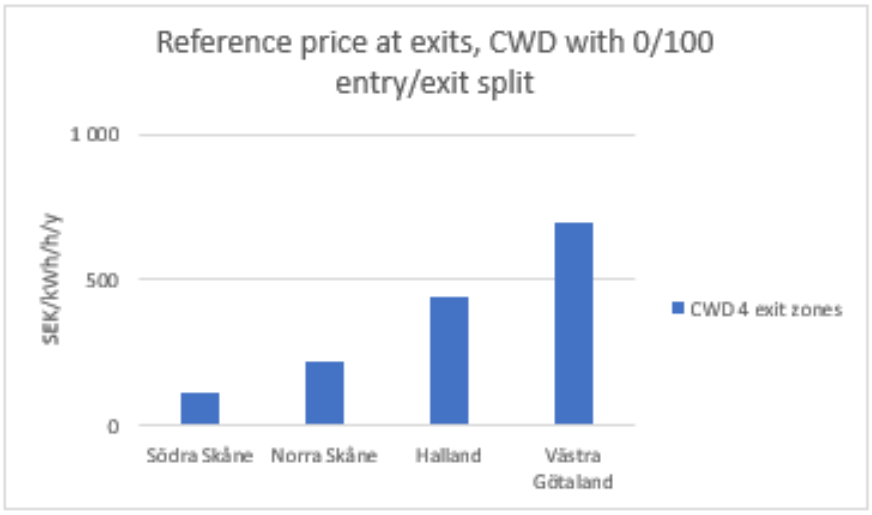

Figure 5. Resulting reference price from CWD-calculation with an entry/exit split of 0/100 for domestic exit points

11.2 Comparison between CWD methodology and proposed RPM

Art.26(1)(a)(vi), Art. 8

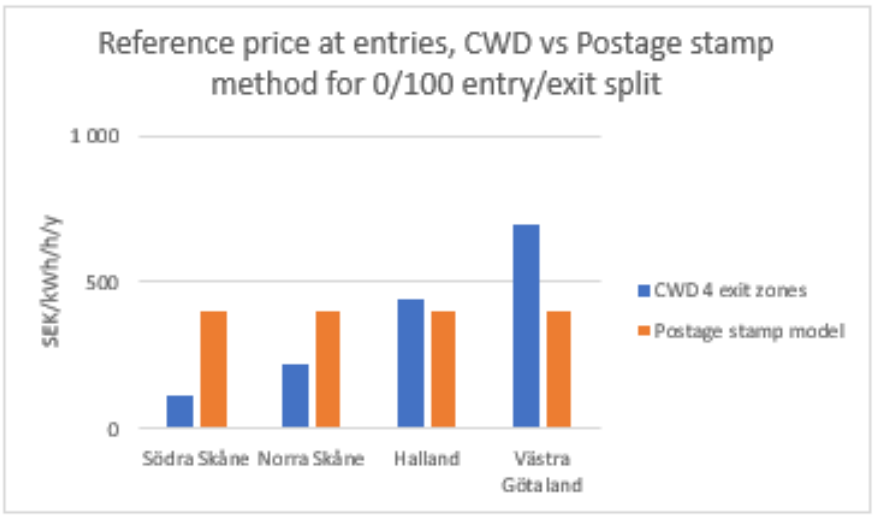

Figure 6. Comparison of the reference price for transporting gas from Dragør to exit points with an entry/exit split of 0/100 with CWD and PS methodology

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Table 3. Comparison between Postage Stamp Method and CWD with 0/100 entry exit split

Criteria	Postage stamp method	CWD
Reference prices SEK/kWh/h/y (Transport from Dragør to Exit area)	404	111/221/445/699
Differences in the manner that each of the methodologies reflects the complexity and technical characteristics of the system	Price is based on allowed revenue and forecasted contracted capacity.	Price is based on allowed revenue, forecasted contracted capacity and distance.
Discrimination	Objective parameters, same price for all users	Objective parameters.
Cross subsidisation	No cross subsidisation between different kind of transport costumers.	No cross subsidisation between different kind of transport costumers.
Reproduceable	Easy to understand, three parameters.	Acquiring data for distance (pipeline lengths) can be difficult to access. Distances need to be adjusted when the topography of the system is changed.
Impact on the market	Same as today	Results in substantial differences in reference price for different offtake areas. High risk of negative volume effect.

As can be seen from Figure 5, the capacity weighted distance method gives reference prices that differ a lot between the four areas used to cluster the domestic exit points. The northernmost area has a reference price that is 6 times higher than the area furthest to the south for 0/100 exit split and 2.2 for the counterfactual comparison with 50/50 entry exit split.

Such large difference in reference prices would lead to the transmission costumers to the north having unreasonably high reference prices. That in turn would have a negative impact the market and lead to decreased market volumes. With a decreased market volume, the reference price would in turn be higher for the remaining costumers.

The calculations for the different methodologies can be seen in Appendix II.

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12. ALLOWED REVENUE OF THE TSO

Art.30 (1)(b)(i),(iv),(v)

12.1 Allowed or target revenue

Art. 26 (1)(b), Art.30 (1)(b)(i)

The allowed revenue for 1st of January 2025 is 470 MSEK per year in real terms, monetary value of 2022. Recalculated to nominal monetary value, Swedegas expects the allowed revenue to be around 577 MSEK. Swedegas intends to recover 89 % of this allowed revenue.

12.2 Transmission service revenue

Art. 26 (1)(b), Art.30 (1)(b)(iv),

The intended transmission service revenue is around 90% of the target revenue i.e. 512.6 MSEK.

12.3 Entry/exit split, commodity split and intra-system/cross border split

Art. 26 (1)(b), Art.30 (1)(b)(v)(1-3)

In table 3 below the current and proposed entry/exit split, commodity split and intra-system/cross border split are presented.

Table 4. Entry/exit split, commodity split and intra-system/cross border split

Ref. TAR NC	Description	Proposal
Art. 30 (1) (b)(v)(1-3)	Capacity-commodity split	100/0
	Entry-exit split	0/100
	Intra-system/cross-system split	(No transit in Sweden)

Capacity-commodity split 100/0 entry- exit split 0/100 intra-system/cross-system split (No transit in Sweden)

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13. INFORMATION ON NON-TRANSMISSION TARIFFS PROVIDED TO NETWORK USERS

LArt. 26 (1)(c)

13.1 Information on non-transmission service tariff methodologies

The following non-transmission services are going to be provided:

i. Pressure reduction service

ii. Administrative charge

iii. Extra area consumption fee

iv. Capacity allocation fee for summer and winter periods

v. Capacity allocation fee for daily capacity products

Pressure reduction service

When the gas is transferred from the transmission network to the DSOs or directly connected end consumers, the gas pressure often must be lowered. The decrease in pressure leads to a decrease in temperature of the gas. To prevent the temperature decreasing to levels that would damage the equipment, the gas must be heated. The heating requires equipment in the form of boilers, piping and heat exchangers, also, gas is required to generate heat in the furnace. The pressure reduction service aims at covering these costs.

The pressure reduction charge is proportional to the number of pressure reduction steps, not capacity or distance.

Administrative charge

The administrative charge is charged for all transmission costumers. It is proportional to the number of connection points to reflect the extra administrative work required at each connection point which can't be attributed to capacity and distance directly.

Extra area consumption fee

Customers with more than one connection point pay an additional fee. The fee is justified by the pooling effect that arises when a subscriber has more than one connection point. The pooling effect means that the subscriber can avoid power peaks that could otherwise have occurred.

The fee is calculated based on number of connection points and consumed energy per month. It does not entail a direct transfer of capacity. The service does not have distance as a cost driver.

Capacity allocation fee for summer and winter periods

The capacity allocation fee refers to a fixed fee that gives the right to book extra capacity for the summer and winter periods. Possible capacity is limited to the stated maximum capacity requirement at the start of the tariff period. The basis for the calculation of the capacity allocation fee is made by multiplying the number of connection points by the ratio of maximum capacity need by the number of connection points. The fee gives the right to book extra capacity if necessary. Cost drivers in the calculation are the maximum capacity requirement and the

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number of connection points. The fee is calculated as a fixed fee per season and does not entail a direct transfer of capacity.

Capacity allocation fee for daily capacity products

The daily booking fee refers to a fixed annual fee for the right to book extra capacity for specific days. Possible capacity is limited to the stated maximum capacity requirement at the start of the tariff period. The fee is calculated as a fixed annual fee and does not entail a direct transfer of capacity. The service does not have distance as a cost driver.

13.2 Share of revenue forecasted to be recovered from non-transmission tariffs

The share of allowed revenue forecasted to be recovered from non-transmission tariffs is around 10%

13.3 Reconciliation of target revenue

Reconciled in the same manner as the transmission tariffs, no separate regulatory account.

13.4 Indicative non-transmission tariffs for non-transmission services

Administrative charge for gas year 2024/2025 [in SEK] = 66 053 x number of connection points

Pressure reduction service for gas year 2024/2025 in [SEK] = 200 021 x number of pressure reduction steps

Extra area consumption fee for gas year 2024/2025 [in SEK/MWh] = 1 x number of connection points

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14. COMPARING TARIFFS AND TARIFF MODELS

Art. 26 (1)(d)

14.1 Comparison between transmission tariffs applicable for prevailing tariff period and for tariff period which the information is relevant.

Art. 26 (1)(d), 30(2)(a)(i-ii)

Swedegas has not taken any decisions regarding future price adjustments. Indicative price changes can however be found under Swedegas' webpage. The forecast is to recover 85 % of allowed revenues in the regulatory period covering years 2023-2026.

Art. 26 (1)(d), 30 (2)(b)

Table 5. Indicative evolution of the reference price.

Gas year	2024/2025	2025/2026	2026/2027
Firm one-year capacity product (SEK/kWh/h/yr)	264	274	283

14.2 Simplified tariff model

Art. 26 (1)(d), 30(2)(a)

A simplified tariff model exists on Swedegas' website where the transmission costumer can calculate tariffs by inserting their yearly consumption, capacity need (highest daily average), number of offtake points and number points with pressure reduction. The calculator will then give an estimated annual cost in SEK/kWh. The tariff calculator is updated yearly to provide the best possible estimate.

The calculator can be accessed at:

https://swedegas.se/underwebbar/swedegas/vara-tjanster/tjanster/overforing/tariffkalkylator

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