

Joint opinion on TAR NC

June 21st, 2018

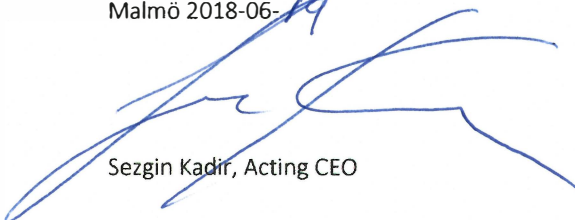
Scope

The European Union has adopted the Commission Regulation 2017/460 on establishing a network code on harmonized transmission tariff structures for gas ("TAR NC"). The sole TSO in Sweden, Swedegas, has announced a consultation with the Swedish natural gas stakeholders between April 30th and June 30th, 2018 according to Chapter VII in TAR NC. This document constitutes the joint opinion by three out of five DSOs under the Swedish transmission grid; E.ON Gas Sverige AB, Kraftringen Nät AB and Öresundskraft AB ("the parties"), together accounting for over 70 % of all distributed gas.

Summary

The parties do not agree with the practise that Swedegas has presented in the consultation material. There are significant shortcomings in how the proposed reference price methodology has been derived, implemented and analysed.

On behalf of E.ON Gas Sverige AB
Malmö 2018-06-19



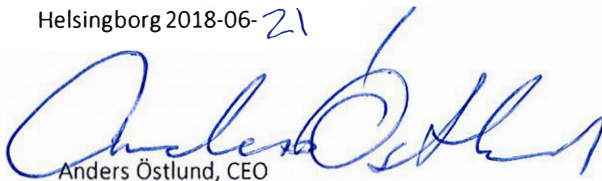
Sezgin Kadir, Acting CEO

On behalf of Kraftringen Nät AB
Lund 2018-06-20



Mikael Olsson, CEO

On behalf of Öresundskraft AB
Helsingborg 2018-06-21



Anders Östlund, CEO

Conclusions

The main conclusions in this opinion are listed below.

1. The Postage Stamp Methodology proposed by Swedegas is admittedly easy to understand and to calculate itself, but the parameters defined inside the model are difficult to reproduce and predict;
2. Allowed revenue is a poor measure for actual revenues since Swedegas doesn't fully utilize its revenue cap. Hence, the actual revenues do not equal the allowed revenues;
3. The allowed revenue defined by Swedegas is also itself a poor measure for allowed revenue onwards for several reasons, including the fact that it governs the years 2015-2018, is in the monetary value of 2013 and has later been reassessed in court;
4. Distance is a fundamental cost driver for transmission services, both according to regulation, technical assessment and sound logic. The Postage Stamp Methodology fails to account for this cost driver and is therefore not fulfilling basic requirements;
5. Adding distance as a cost component for the reference price is not cumbersome since the Swedish transmission grid is uncomplicated and static. The significance of gained cost reflectivity is far greater than the added complexity;
6. In the end, Swedegas presents an indicative capacity tariff that is unrelated to the chosen RPM. The need to introduce a capacity tariff that is far from the reference price indicates that the reference price, and hence the chosen RPM, is flawed;
7. Swedegas dismisses entry tariffs because of administrative costs. In doing so, Swedegas also makes comparisons against a counterfactual with the wrong entry/exit split. This ignores the balancing function of entry tariffs and dramatizes the perceived market impact of the counterfactual;
8. The desired cost allocation of the correct counterfactual can easily be obtained without actually introducing entry fees;
9. Swedegas discussion on market effects is insufficient since it doesn't highlight the fact that total pricing is currently higher in the south, already causing negative volume effects and leading to development in physically inefficient markets at the expense of efficient ones. Not accounting for distance as a cost driver suboptimises the total market economy;
10. Swedegas discussion on market effects is also insufficient since it doesn't cover the whole market, only the offtake area which is negatively affected by CWD. The positive market effects in the southern offtake areas would be significant, given that the reference price was to be cost reflective.

Introduction

All references to various articles and chapters in this opinion relates to TAR NC unless otherwise stated. The parties will focus on Swedegas proposed Reference Price Methodology ("RPM"), namely the Postage Stamp Methodology ("PS"), as compared to Capacity Weighted Distance Methodology ("CWD"), in relation to the following requirements stated in Article 7.

- “ *The reference price methodology [...] shall aim at:*
- (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-subsidization 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.*
- “

The parties will at the end of this opinion also elaborate on Swedegas discussion regarding the counterfactual and market impact.

(a) Reproduction and predictability

Swedegas claims that PS is easy to understand and that the reference price obtained from it can easily be reproduced. The parties agree that the equation itself, as well as the two parameters *allowed transmission service revenue* (also called “revenue cap”) and *forecasted contracted capacity* are principally easy to understand. The parties don’t agree that they are easily reproduced and/or predicted.

Allowed transmission service revenue

The principles for allowed transmission service revenue is easily understood, at least for all DSOs that are all governed by the same legislation as Swedegas. From the consultation material it is however evident that the figure is not easily predicted, since not even Swedegas can present a relevant figure for the upcoming gas year 2018/2019, even less so for 2019/2020 which the consultation is relevant for. Swedegas has instead used the initially decided allowed revenue cap for 2015-2018 (“RP1”) in the monetary value of 2013, which first is not fixed as Swedegas claims, nor is it relevant for deciding on a reference price for 2019 and onwards for several significant reasons.

1. The historically allowed revenue doesn’t cover predictions into the near future;
2. Swedegas revenue cap has been reassessed in court and remitted to the NRA, increasing the transmission grid lifespan from 65 to 90 years and changing the WACC from 6,26 % to 6,91 % as compared to the decision in 2014. This increases Swedegas revenue cap in RP1 with 10 %, from 1 826 to 2 014 MSEK in the monetary value of 2013;
3. The fact that indexation from 2013 to 2019 needs to be addressed adds a factor of some additional 5-10 % to the allowed revenue, depending on how the Swedish CPI and Transmission Index develops onwards;
4. The revenue cap will later be reconciled since the decision was made in 2014 and was based on several preliminary projections on Swedegas business development. These need to be updated in real time to give a realistic figure on the present revenue cap. This is an unmanageable task for the DSOs;
5. Swedegas has divided the revenue cap evenly over all four years, resulting in an allowed revenue of $1826/4 = 456$ MSEK as input in the RPM. Swedegas has in fact not distributed the revenue evenly over all years in RP1 and is unlikely to do so onwards;
6. Swedegas pricing normally follows a gas year (October-September), whereas the regulatory period covers four calendar years (January-December) at a time. A regulatory period therefore overlaps five different gas years, whereas a single gas year can overlap two different regulatory periods, making allocation of revenues among gas years hard to predict;
7. Swedegas does not fully utilize its revenue cap, meaning that real revenues are not actually related to the allowed transmission service revenue.

If the allowed transmission service revenue is to be used as an input parameter to estimate revenues, Swedegas should be obliged to full transparency regarding their view on the figures for upcoming years. Swedegas has handed in the application regarding revenue cap for the years 2019-2022 to the NRA and consequently has an internal view on the allowed revenues for upcoming years. Swedegas should also present a view on how they plan to reach full revenue cap utilization onwards.

In conclusion the parties do not have the ability to reproduce and/or predict Swedegas future allowed transmission service revenue, nor how much of it that Swedegas will utilize.

Forecasted contracted capacity

The cost driver for capacity can either be based on technical capacity or forecasted capacity. Swedegas has chosen to use a parameter called forecasted contracted capacity, but has not presented any details as to how the forecast is carried out. The information given in the consultation material is spelled out below.

“ *The forecast is based on the historical demand on customer level and takes into account trends and any known expected changes in the consumption.* ”

Without further information on the forecast procedure, it's impossible for the individual DSOs to guess what trends Swedegas foresee and that changes in consumption Swedegas expects on the national gas market as a whole. The parties do not have the ability to reproduce and/or predict the forecasted contracted capacity that Swedegas has presented.

Adding distance

The transmission grid in Sweden is unique in the sense that it basically comprises a straight pipeline from south to north, with only one branch inland. There are no other branches, principally only one entry, only one operator and no cross-border transit. The Swedish grid is therefore easily analysed, especially since Swedegas interpretation of CWD implies dividing all customers into just four offtake areas. The Swedish transmission grid is furthermore static in the sense that there is little or no market development in a larger geographic scale.

Considering the uncomplex and static nature of the transmission grid, confirming and keeping the lengths updated should not imply any difficulties for Swedegas or for any other external part. Based on present values for average distances, projections into the future will regardless be sufficiently precise given that the transmission grid has hardly changed at all for the last 10 years. This is emphasized by examining the yearly reports that all grid operators send to the NRA, in which Swedegas total grid length is presented, see figure 1 below.

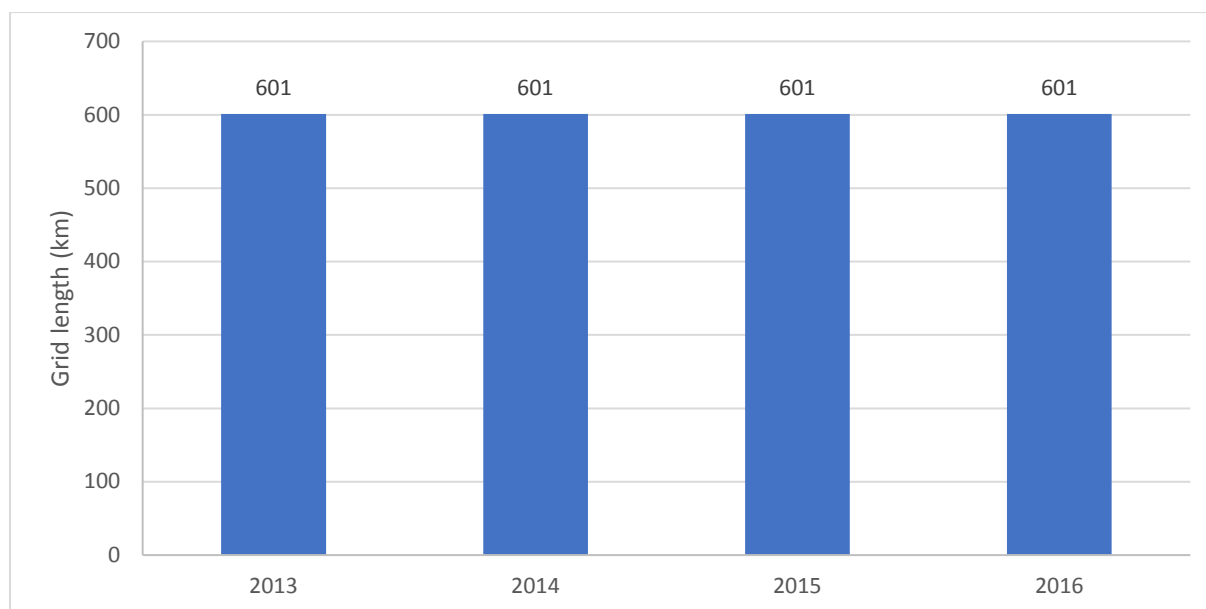


Figure 1. Development of Swedegas total grid length from (Swedegas yearly NRA reports 2013-2016).

Given the average lengths for the inputs and exits, the task of calculating CWD is an easy task. Compared to the difficulties of the already suggested parameters in PS, adding distances hardly makes reproducing and predicting the reference price any more difficult or complex.

(b) Accounting for actual costs considering the complexity

Article 4 states that a condition for transmission services is that distance is a main cost driver alongside with technical or forecasted capacity. According to this very definition of transmission services as well as the captioned requirement, it is natural to expect a RPM that in some way reflects distance between entry and exit for the transmission service. This is also supported by the Swedish legislation on natural gas, which in chapter 6 states that the tariff should pay “particular consideration to where the line or facility to be connected is located”, “take into account the geographical location of the customers” and “include charge for the transfer in all pipelines through which the transfer takes place” (translated by own hand).

Based on the above, a basic objective for the RPM should be to define a reference price that (at least) relates price for the transmission service to capacity and distance. CWD is chosen as a counterfactual for its ability to

account for these primary cost drivers without being unnecessary complex. One would expect good reasons for a TSO to strive for another RPM, such as its ability to better account for actual costs and/or better correspond to the complexity of the transmission system. On the contrary, Swedegas suggests a continued use of PS, which fulfils none of this.

Accounting for actual costs

Swedegas justifies the proposed RPM by stating that *“The allowed revenue is based on the technical aspects of the transmission system”* and *“Since the allowed revenue is used to calculate the reference price the postage stamp method is, by definition, cost reflective”*. When stating this, Swedegas refers to using the allowed transmission service revenue as numerator in the equation below.

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

First, Swedegas interpretation of allowed transmission service revenue in the above ratio is not relevant according to discussions on reproduction and predictability above. Second, the alleged definition is false since the revenue allowance build-up has only been used to set the total revenue, not to allocate revenues among customers. It's not enough to use a cost reflective parameter in the numerator for the reference price (the whole ratio) to be cost reflective by definition.

It is obvious and unavoidable that revenues will, at most, equal the allowed revenue since that is governed by Swedish legislation on natural gas. No matter the RPM, Swedegas will legally never be able to increase revenues above the revenue cap decided by the NRA. This is not a unique circumstance for the proposed RPM. It is instead how the allowed revenue is allocated among customers, i.e. the driver, that determines whether the RPM and the resulting reference price is in fact cost reflective.

Just as Swedegas claims, the allowed transmission service revenue covers reasonable costs to conduct transmission business, wherein the complexity of the system is reflected. In that assessment of the transmission system, more and longer transmission pipes cause higher costs and generate a higher allowed revenue. Since capital costs constitute the lion's share of Swedegas revenue cap, customers who use a greater portion of the assets should also pay a higher price. If the proposed RPM is to reflect the technical assessment and mechanics behind the allowed transmission service revenue, longer pipes and further distances should also be reflected in higher reference prices.

The lack of logic behind the proposed RPM is evident when setting the underlying statements against each other. There is no relationship between what Swedegas on one hand claims to be a cost reflective allowed revenue, and what Swedegas on the other hand claims to be the sole cost. The reason for this is that contracted capacity does not actually drive costs for Swedegas and that the allowed revenue is completely unaffected by such changes. The parties therefore suggest that the parameters in the RPM should be better substantiated and motivated.

Considering complexity

For all the reasons above, distance between entry and exit should be considered a main cost driver for transmission services according to both technical and regulatory aspects, as well as sound logic. Due to simplification, the proposed RPM however fails to allocate this cost driver and customers are presented with a homogenous reference price, no matter the distance. The remaining question that needs to be answered is whether the simplification can be justified considering the level of complexity of the transmission network. As a base case, CWD obviously has an acceptable level of complexity given that it is chosen as a counterfactual.

As discussed above, the transmission grid in Sweden is unique in its low degree of complexity. Adding distances does not make reproduction or prediction of the reference price unjustified complicated. The parties see no need to simplify the assessment of distances as compared to CWD, especially given the level of cost reflectivity that is lost.

(c) Ensuring non-discrimination and cross-subsidisation

PS is not unique in the sense of non-discrimination as compared to CWD. Just as Swedegas has observed, prevention of cross-subsidisation is naturally guaranteed since the transmission system does not transit gas.

(d) Preventing volume risk for customers in an entry-exit system

Prevention of volume risks is naturally guaranteed since there are not cross-system network users. PS brings no benefits as compared to other RPMs.

(e) Preventing distortion of cross-border trade

Prevention of cross-border trade distortion is naturally guaranteed since the transmission system does not transit gas. PS brings no benefits as compared to other RPMs.

Indicative capacity tariff

When carrying out the discussion on future price changes, Swedegas needs to introduce an *indicative capacity tariff* to keep predictions on a realistic level. This is motivated by the fact that “*Swedegas will not utilize the allowed revenue to 100 %*”, which the parties already have explained to be a shortage in the chosen RPM. The parties are concerned about whether the indicative capacity price fulfils TAR NC requirements on reproducibility and predictability since it has nothing to do with the chosen RPM, nor is there any information about how the indicative prices have been derived. The RPM and much of the consultation material is useless if the capacity tariff will be decided as something completely else in the end.

The very need to introduce a non-grounded capacity tariff that is far from the reference price indicates that the reference price, and hence the chosen RPM, is flawed.

Discussion

Comparisons against CWD

CWD is the only counterfactual set out in TAR NC, which means that all TSOs will have to compare the tariffs under their chosen RPMs to CWD tariffs. Applying CWD without modification would eliminate the need for any counterfactual, meaning that CWD is by default an accepted method. It is therefore the chosen RPM that needs to be compared to CWD, not the other way around. Comparisons against CWD are made since CWD is deemed to be an objective and cost reflective RPM. Large deviancies can hence imply that the chosen RPM fails to accomplish some of the above, not that CWD itself is wrong.

It must be Swedegas' task to justify the suggested RPM, even though it shows such large deviancies against CWD. The only difference between the two methodologies is that CWD correctly includes distance as a main cost component according to regulatory requirements, which PS does not.

The correct counterfactual

Swedegas rejects the 50/50 entry/exit split since it doesn't affect the outcome of PS and since administration costs for the costumers would increase. Fair enough, the system would need to change and administration would likely increase if entry tariffs were implemented, but that doesn't change the fact that a 50/50 entry/exit split CWD (“CWD_{50/50}”) is a valid counterfactual that needs to be accounted for and compared to according to TAR NC. A different entry/exit split also changes the outcome of CWD, thus making it a valid and important factor.

The deviancies between PS and CWD aren't as large as may seem in the consultation material, since the comparison should be made against the counterfactual CWD_{50/50} according to Article 8. The discussion in the consultation material is invalid since it compares the suggested RPM with a CWD_{0/100}. This neglects the balancing effect of the entry tariff and dramatizes the perceived market impact of CWD.

Counterproposal RPM

There is an easy way to work around the problem of implementing entry fees, but still accounting for actual distance costs just as well as CWD_{50/50}. As Swedegas has stated, almost all the natural gas in Sweden is entered in Dragör, implying that all customers basically draw from the same entry point. A consequence of this that an entry fee would not differ for consumers in different geographical areas. This is completely analogous to PS, meaning that the results from CWD_{50/50} can easily be reproduced with a modified CWD, instead using a 50/50 split between CWD_{0/100} and PS_{0/100}. The reference price for such a RPM can easily be calculated as follows:

$$50\% * \left(\frac{Revenue}{Driver_{PS\ 0/100}} + \frac{Revenue}{Driver_{CWD\ 0/100}} \right) = Reference\ price$$

Below is a comparison of reference prices from various RPMs, given the input parameters supplied by Swedegas. The calculations are given in a separate Excel spreadsheet, see Attachment 1. As seen in figure 2 below, an exact reproduction of the cost reflective counterfactual CWD_{50/50} can easily be obtained while still maintaining the existing 0/100 entry/exit split.

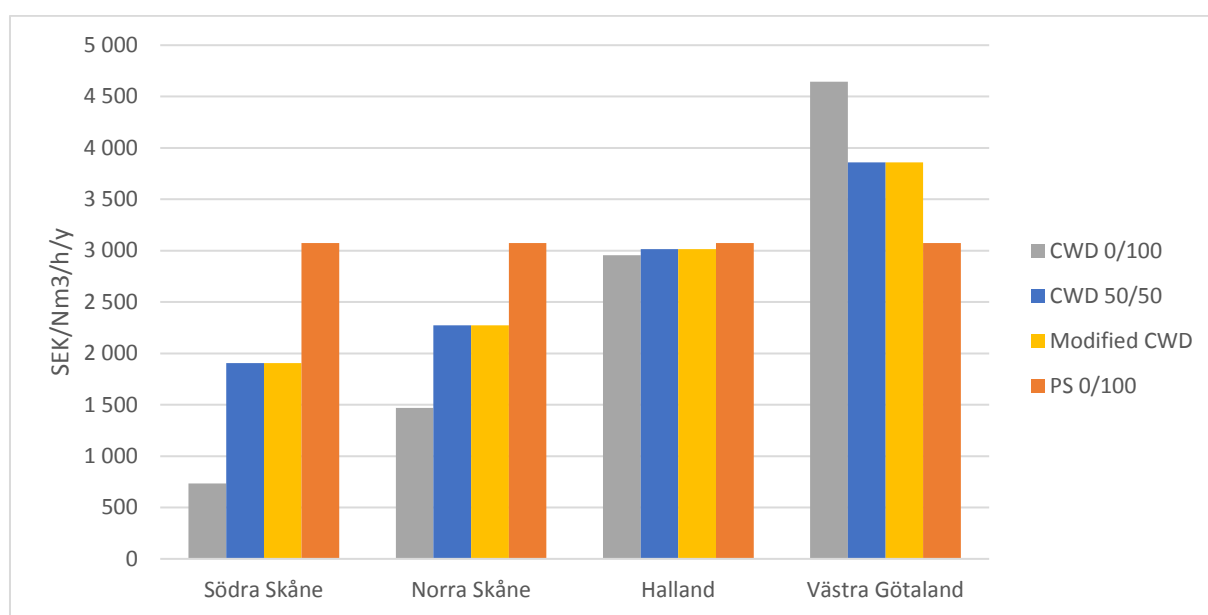


Figure 2. Comparison of reference prices for various RPMs.

Market effects

Swedegas justifies PS by claiming that CWD results in substantial differences in reference price for different offtake areas and that this in turn has a high risk of negative volume effect. This is a rash statement with no supporting facts since the complete analysis on market effects needs to consider all tariff components and all the offtake areas.

In a transmission grid as simple as the Swedish one, it's easily confirmed that CWD reference prices represent reality. The average distance for exits in Södra Skåne is in fact 54 km, and had the grid not gone further north, there would be no extra transmission costs to bear. What the CWD reference prices show, is that the grid is more effective in the south and that these customers subsidize natural gas expansions to the north, leading to development in physically inefficient markets at the expense of efficient ones. This is an approach that fundamentally suboptimises the total market economy. Unfair cost allocations deprive natural gas its natural competitiveness in southern parts of Sweden, give negative volume effects and prevent growth where natural gas would otherwise be cost effective.

Swedegas tariff structure implies that southern consumers are, on the contrary to CWD, currently faced with relatively higher transmission costs since tariff components for extra capacity¹, capacity distribution¹,

¹ Related to number of control stations

administration¹ and pressure reduction², as well as discounts for interruptible capacity³ favour the northern market when comparing total transmission costs in relation to contracted/technical capacity or volume. The current pricing therefore already causes skew market conditions on behalf of the northern offtake areas but at the expense of the southern ones. This ought, with the same logic as in the consultation material, also result in negative volume effects for the total market. Such negative volume effects are however not mentioned.

An effect of the skewed market has already been seen with overall declining volumes and concrete examples of customers leaving the market in the south. The previously largest consumer⁴ (Öresundsverket) in the whole of Sweden was shut down in 2016 due to poor competitiveness. Öresundsverket is charged a distribution tariff in which roughly 90 percent of the costs mirror the transmission tariff for the offtake area Södra Skåne.

Adding a distance component to the proposed RPM would not only lead to a more cost reflective reference price, it would also improve market functionality and bring balance to the currently inverted cost allocation among the offtake areas. Having transmission customers bear their actual costs would furthermore counteract the way the Swedish transmission grid has developed so far, stretching as far as possible from the entry point to reach additional customers, with decreasing effectiveness.

Attachments

1. Joint opinion TAR NC - Attachment 1 - Comparison on RPMs.xlsx

² Related to number of pressure reduction steps

³ Conversely related to distance from entry point

⁴ Öresundsverket in Malmö (Södra Skåne) consumed 1.4 TWh in 2015, corresponding to around 16 % of Swedegas total transmission that year