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Network code on harmonised transmission tariff structures for gas (NC TAR)

Implementation of NC TAR in the Netherlands

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Agenda

- Multipliers and seasonal factors
- Interruptible discount
- Non-transmission tariff structures
- Numerical results
- Possible solutions for issues with proposed 0/100 entry-exit split (by GTS)

Per subject: assessment of GTS' proposal and alternative(s) ACM

General remark

- ACM presents and explains her preliminary choice for multipliers, seasonal factors, interruptible discount and non-transmission tariffs based on her current thinking.
- Goal of presentation is to hear relevant arguments of stakeholders regarding ACM's current thinking.
- ACM also presents relevant alternatives to hear stakeholders' thoughts on these alternatives.
- ACM will consider the GTS proposal if the proposal:
  1. Is in line with NC TAR and other relevant rules and regulations;
  2. Correctly weighs different aspects/interests; and
  3. Is sufficiently explicable and motivated

Multipliers and seasonal factors

Multipliers: relevant provisions

- Scope of NC TAR limited to IP's
- Multiplier for all non-yearly capacity products:
  - Quarterly multiplier
  - Monthly multiplier
  - Daily multiplier
  - Within-day multiplier
- The multiplier may be different at different interconnection points
- The quarterly multiplier and the monthly multiplier shall be no less than 1 and no more than 1.5
- The daily multiplier and the within-day multiplier shall be no less than 1 and no more than 3

Multipliers: relevant provisions

- The ACM shall take the following into account for the choice of the multipliers (cf. art. 28):
  - the balance between facilitating short-term gas trade and providing long-term signals for efficient investment in the transmission system;
  - the impact on the transmission services revenue and its recovery;
  - the need to avoid cross-subsidisation between network users and to enhance cost-reflectivity of reserve prices;
  - situations of physical and contractual congestion;
  - the impact on cross-border flows;

Seasonal factors: relevant provisions

- Scope of NC TAR limited to IPs
- Seasonal factors are optional
- Seasonal factors may be applied to some or all IPs and may be different for different IPs
- Where seasonal factors are applied, the reserve prices shall be calculated in accordance with the relevant formulas set out in Article 15 which thereafter shall be multiplied by the respective seasonal factor
- Where seasonal factors are applied, the arithmetic mean over the gas year of the product of the multiplier applicable for the respective standard capacity product and the relevant seasonal factors shall be within the same range as for the level of the respective multipliers set out on slide 5.

Seasonal factors: relevant provisions

- If seasonal factors are applied they shall be calculated in accordance with article 15(2) to (6). The decisions that have to be made in order to apply these calculations are:
  - The scope of the seasonal factors: will the seasonal factors be applied on a subset of all IP's or all IP's? If so, which subset?
  - The impact of the seasonal factors by choosing the power referred to in article 15(3)(e) somewhere within the range of 0 to 2.
  - The way flows are forecasted.
  - The way seasonal factors for quarterly capacity are derived from the seasonal factors for monthly capacity products.
  - Whether the seasonal factors for all non-yearly capacity products shall be rounded off, rounded down or rounded up. And if so, to what extent.

Seasonal factors: relevant provisions

- The ACM shall take the following aspects into account for the choice of the seasonal factors (cf. art. 28):
  - The impact on facilitating the economic and efficient utilisation of the infrastructure; and
  - The need to improve the cost-reflectivity of reserve prices.

Multipliers & Seasonal factors: scope

Points	Capacity products	Allocation mechanism	Current pricing of non-yearly products
Interconnection	- Firm yearly - Firm quarterly - Firm monthly - Firm daily - Firm within-day - Interruptible daily	Auction	• Monthly factors: *Winter: 0,3* *Flank: 0,15* *Summer: 0,075* • For a combined booking there is a cap on the overall monthly factor that is equal to: *0,8125 + 0,03 x winter months + 0,015 x flank months + 0,0075 x summer months* • The daily factor is 1/30 • The within-day price is 1/24th of the daily price for each of the remaining hours of the gas day
Production, industries, storages, private distribution companies	- Firm yearly - Firm quarterly - Firm monthly - Firm daily - Firm within-day* - Interruptible monthly	First come first served	• Monthly factors: *Winter: 0,3* *Flank: 0,15* *Summer: 0,075* • For a combined booking there is a cap on the overall monthly factor that is equal to: *0,8125 + 0,03 x winter months + 0,015 x flank months + 0,0075 x summer months* • The daily factor is 1/30 • The within-day price is 1/24th of the daily price for each of the remaining hours of the gas day
Local distribution	- Firm monthly	Ex-post	Monthly fractions, that are calculated by applying the monthly factors on the planned capacity

* Available from 1-1-2018 on non IP's except SFA entry points

Multipliers & Seasonal factors: scope

- Scope of NC TAR regarding multipliers and seasonal factors is limited to IP's
- However, all tariffs should be non-discriminatory and avoid cross-subsidies → implement the same multipliers and seasonal factors on non-IP's, unless there is a good reason not to
- The capacity on local distribution points (LDC) will be booked by the combination of capacity products that results in the lowest overall price.

Multipliers & Seasonal factors: differentiation between points

- The multipliers and seasonal factors may be different for each point in the system
- However, ACM does not see any reason to use different multipliers or seasonal factors for different points
- Conclusion: ACM proposes to implement *the same* multipliers and/or seasonal factors for all points

The effect of multipliers and seasonal factors

- Multipliers determine the level of price differentiation between capacity products with a different duration (i.e. year, quarter, month, day, within-day)
- Seasonal factors determine the level of price differentiation between capacity products with the same duration during different parts of the year (i.e. December vs. June)
- Multipliers and seasonal factors are two different instruments, that together determine the price for a non-yearly standard capacity product

Multipliers

Aspect to be taken into account	High multiplier	Low multiplier
The need to avoid cross-subsidisation between network users and to enhance cost-reflectivity of reserve prices	+	-
Preventing situations of physical and contractual congestion	+	+
Facilitating short term gas trade	-	+
Providing long-term signals for efficient investments in the transmission system	+	-
The impact on the transmission service revenue and its recovery	+	-
The impact on cross-border flows	0	0

Multipliers

- The need to avoid cross-subsidisation between network users and to enhance cost-reflectivity of reserve prices:
  - Argument for high multipliers.
  - High multiplier → Promotes yearly capacity products → Shippers pay for their peak demand for capacity → Costs are driven by peak demand for capacity → Cost-reflective
  - However, higher prices for non-yearly capacity products are only cost reflective if they are used for profiled bookings.
  - To the extent that on-peak periods **can** be predicted (example: summer vs. winter), seasonal factors may be a better instrument to achieve cost-reflectivity. Seasonal factors only increase prices in on-peak periods but decrease prices in off-peak periods. Therefore, seasonal factors have little effect on prices for flat bookings, but increase prices for profiled bookings.
  - If, however, usage of the grid **cannot** be predicted (example: different days within a month), applying multipliers to achieve cost reflectivity is necessary.

Multipliers

- Providing long-term signals for efficient investments in the transmission system:
  - Argument for high multipliers
  - Incremental capacity auctions sell only yearly capacity products for upcoming years
  - Low multipliers → Yearly capacity products relatively unattractive → Shippers unwilling to commit to yearly capacity products for upcoming gas years → Incremental capacity procedure not useful to reveal demand for future capacity → No clear long-term signals for efficient investments → Risk of over- or under-investment

Multipliers

- The impact on the transmission service revenue and its recovery:
  - Argument for high multipliers
  - Revenue cap regulation → multipliers do not have an effect on the recovery of the transmission service revenue, but they do have an effect on the timely recovery of the transmission service revenue
  - High multipliers → Shippers willing to commit to buying yearly capacity for upcoming years → Capacity already sold in advance of gas year → Easier to forecast contracted capacity → Smaller revenue reconciliation

Multipliers

- Facilitating short term gas trade:
  - Argument for low multipliers
  - Low multipliers → promote capacity products with short duration → sold closer to actual usage of capacity → more flexibility to respond to market dynamics → facilitates short-term gas trade

Multipliers

- Preventing situations of physical and contractual congestion
  - Argument for both low and high multipliers
  - Low multipliers → promote capacity products with short duration → sold closer to actual usage of capacity → less unused capacity sold → prevents contractual congestion
  - High multipliers → signals for efficient investment (see slide 16) → prevents physical congestion

Multipliers

- The impact on cross-border flows:
  - Not an argument for either low or high multipliers
  - Low multipliers → promote capacity products with short duration → sold closer to actual usage of capacity → easier to respond to price-spread → increases cross-border flows
  - High multipliers → promotes capacity products with long duration → once bought, capacity costs are sunk → any price spread can be exploited → increases cross-border flows
  - Impact on cross-border flows depends on shippers' expectations about the price spread and the actual price spread

Multipliers

- Together, these aspects point towards both ‘high’ and ‘low’ multipliers
- ACM concludes that a balance needs to be struck
- Principle:
  - Quarterly multiplier < Monthly multiplier < Daily multiplier = Within-day multiplier
  - Reason: quarterly, monthly and daily capacity enable profiled bookings. Within-day doesn’t allow for a within-day profile (flat profile for the remaining hours of the day, no differentiation between hours).

Multipliers: proposal GTS

- Proposal GTS:
  - Investigate whether the German method for calculating multipliers is suitable
- Conclusion ACM:
  - German quantitative analysis is based on current booking behaviour, but booking behaviour is influenced by the chosen multipliers → dual causality problem

Multipliers: proposal

- ACM proposes:
  - Quarterly multiplier = 1,2
  - Monthly multiplier = 1,5
  - Daily multiplier = 3
  - Within-day multiplier = 3
- Reasonable ‘turning points’:

Turning points					
		Relative to capacity product			
		yearly	quarterly	monthly	daily
Capacity product	yearly	1			
	quarterly	3	1		
	monthly	8	2	1	
	daily	121	36	15	1

Multipliers: alternative

- An alternative proposal:
  - Quarterly multiplier = 1,1
  - Monthly multiplier = 1,2
  - Daily multiplier = 2,4
  - Within-day multiplier = 2,4
- Reasoning:
  - Cost reflectivity of quarterly and monthly capacity products relative to yearly booking is also affected by seasonal factors → argument to apply lower multipliers for quarterly and monthly capacity products
  - Cost reflectivity of daily and within-day capacity products relative to monthly capacity products is not affected by seasonal factors → argument to maintain higher day and within-day multiplier (relative to monthly multiplier)
- However: less cost-reflective than higher monthly and quarterly multipliers

Seasonal factors

- Aspects to be taken into account:
  - The impact on facilitating the economic and efficient utilisation of the infrastructure; and
  - The need to improve the cost-reflectivity of reserve prices
- This argues for the use of seasonal factors if:
  - Seasons predict demand for capacity in different parts of the year
  - Application of seasonal factors may shift part of the demand from on-peak periods to off-peak periods
  - Application of seasonal factors improves cost-reflectivity by taking into account the extent to which non-yearly capacity products are used for profiled bookings

Seasonal factors

- ACM proposes:
  - Maximum level of seasonal factors, by setting the power referred to in article 15(3)(e) equal to 2.
  - Flows forecasted based on average monthly allocations in the years 2014-2016
  - Seasonal factors for quarterly capacity shall be equal to the arithmetic mean of the respective monthly seasonal factors, where the forecasted flows are used as weights
  - Seasonal factors shall be rounded off to 3 digits
- In line with proposal by GTS, except for calculation of forecasted flow

Multipliers and seasonal factors: questions

- Do you agree that the aspects to be taken into account for the decisions regarding multipliers point towards finding a reasonable balance between the relevant aspects to be taken into account? Why (not)?
- Do you agree that seasonal factors increase cost-reflectivity? Why (not)?
- What's your opinion about the proposal by ACM?
  - Do you think the multipliers should be higher/lower? If so, why?
  - What do you think of the proposal by ACM to apply the maximum level of seasonality of prices? Why?

Multipliers & seasonal factors: results

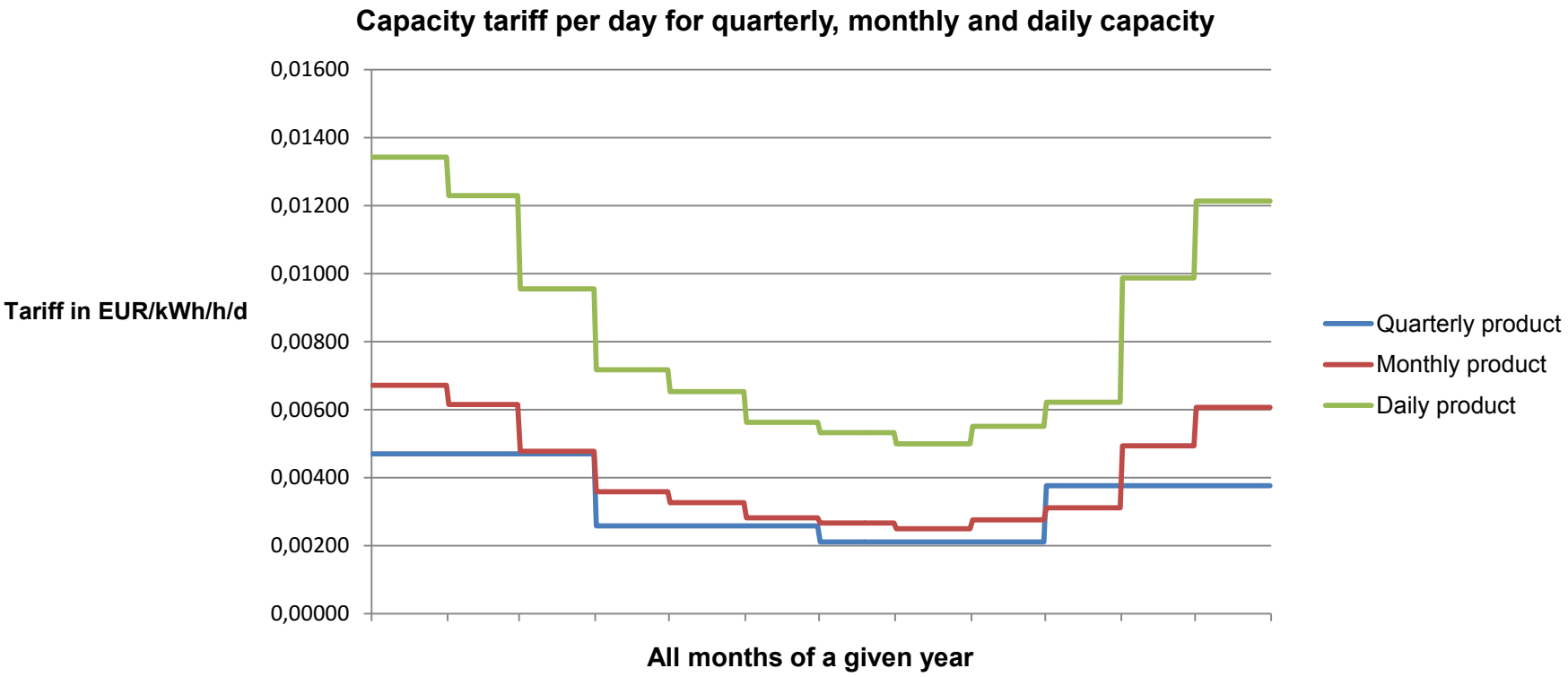
Quarterly capacity products if reference price = 1 & multiplier = 1,2 & seasonal = 2				
Gas quarter	**Seasonal factor**	**Number of days**	**Capacity tariff**	**Tariff/days**
Q1	1,430	90	0,423	0,00470
Q2	0,784	91	0,235	0,00258
Q3	0,642	92	0,194	0,00211
Q4	1,144	92	0,346	0,00376

Monthly capacity products if reference price = 1 & multiplier = 1,5 & seasonal = 2				
Gas month	**Seasonal factor**	**Number of days**	**Capacity tariff**	**Tariff/days**
Jan	1,633	31	0,2080	0,00671
Feb	1,496	28	0,1721	0,00615
Mar	1,162	31	0,1480	0,00478
Apr	0,872	30	0,1075	0,00358
May	0,794	31	0,1012	0,00326
June	0,685	30	0,0845	0,00282
July	0,648	31	0,0826	0,00266
Aug	0,607	31	0,0773	0,00249
Sept	0,670	30	0,0826	0,00275
Oct	0,756	31	0,0963	0,00311
Nov	1,201	30	0,1481	0,00494
Dec	1,476	31	0,1880	0,00607

Multipliers & seasonal factors: results

Daily capacity products if reference price = 1 & multiplier = 3 & seasonal = 2				
Gas month	**Seasonal factor**	**Number of days**	**Capacity tariff**	**Tariff/days**
Jan	1,633	1	0,0134	0,01342
Feb	1,496	1	0,0123	0,01230
Mar	1,162	1	0,0096	0,00955
Apr	0,872	1	0,0072	0,00717
May	0,794	1	0,0065	0,00653
June	0,685	1	0,0056	0,00563
July	0,648	1	0,0053	0,00533
Aug	0,607	1	0,0050	0,00499
Sept	0,670	1	0,0055	0,00551
Oct	0,756	1	0,0062	0,00621
Nov	1,201	1	0,0099	0,00987
Dec	1,476	1	0,0121	0,01213

Multipliers & seasonal factors: results



Interruptible discount

What is required by NC TAR

- Article 16:
  1. The reserve prices for standard capacity products for interruptible capacity shall be calculated by multiplying the reserve prices for the respective standard capacity products for firm capacity calculated as set out in Articles 14 or 15, as relevant, by the difference between 100% and the level of an ex-ante discount calculated as set out in paragraphs 2 and 3.
  2. [calculation steps]
  3. [calculation steps]
  4. As an alternative to applying ex-ante discounts in accordance with paragraph 1, the national regulatory authority may decide to apply an ex-post discount, whereby network users are compensated after the actual interruptions incurred. Such ex-post discount may only be used at interconnection points where there was no interruption of capacity due to physical congestion in the preceding gas year. The ex-post compensation paid for each day on which an interruption occurred shall be equal to three times the reserve price for daily standard capacity products for firm capacity.

Interruptible capacity

- In the Netherlands, there are two possibillities:
  1. Ex-ante discount
  2. Ex-post discount

- Ex-ante discount should be set in line with article 16 of NC TAR
- The discount should represent the probability of interruption

Interruptible capacity

- Interruptible capacity is only offered on a day-ahead basis if firm capacity is sold out.
- Interruptible capacity is rarely offered, since most often firm capacity is still available
- In 2016 and 2017 interruptible capacity was booked on two interconnection points
- Capacity is only interrupted when all shippers that booked firm capacity decide to flow their capacity. In this case demanded capacity exceeds the technical capacity
- In 2016 and 2017 there were no interruptions

Proposal of GTS

- GTS proposes to maintain the interruptible capacity tranche with a 15% probability of interruption
- GTS does not have a proposal for the adjustment factor

Assessment by ACM

- The actual probability of interruption is determined by three factors:
  - The amount of interruptible capacity that is offered by GTS
  - The amount of interruptible capacity that is booked by shippers
  - The amount of firm capacity that shippers decide to flow

- The proposed 15% probability is fully dependent on the amount of interruptible capacity offered by GTS

Proposal of ACM

- ACM proposes an *ex-post* discount for interruptible capacity
- There is always a probability that there is an interruption. However, in 2016 and 2017 it did not occur.
  - There was only little interruptible capacity booked
  - The usage rate of booked firm exit capacity is low, so the probability of more flows than technical capacity is very low.
- An ex-ante discount could be set on the basis of the interruptible capacity booked, therefore an ex-ante discount would be very low
- Interruptible discount is consulted yearly so it can be adapted timely, if neccesary

Questions

- What do you think of an ex-post discount?
- Would you rather have a low ex-ante discount or a predetermined ex-post discount? Why?

Non-transmission tariff structures

Non-transmission services

- ACM only considered the gas heating fee* as a potential non-transmission service.
- However, in assessing this service ACM concludes that there is no legal basis for gas heating as a seperate service.
  - The Ministrial Decree Gas Quality (MR Gaskwaliteit) determines the minimum and maximum temperature of the gas when delivered by GTS. These are ranges between 0 and 40 degrees.
  - All costs made in meeting these requirements have to be recovered through the transport tariffs.

* By ‘gas heating’ we mean the activity whereby on request GTS heats the gas to a specific, higher, temperature.

Non-transmission services

- ACM sees no reason to distiguish gas heating as a seperate service for the implementation of NC TAR.
  - Gas heating should be seen as part of transport and qualifies as such as transmission.

→ Therefore, ACM does not propose any non-transmission tariff structures

Numerical results

Numerical results

- In the upcoming slides, we present the outcome of the different options presented for RPM and entry-exit split
- In the calculations, we use a 50% discount for storages and a 0% discount for LNG
- For each option, we present the average tariff per segment, the comparison with the current average tariff and the effect on the revenue per segment.

Average tariff

Exit	Current tariffs 2018	Postage				CWD
		E-E: 50-50	E-E: 40-60	E-E: 0-100	E-E: ex-post	
Border point	1,72	1,64	1,93	2,98	1,72	1,86
Industrial point	1,77	1,64	1,93	2,98	1,72	1,65
Local distribution point	1,90	1,64	1,93	2,98	1,72	1,56
Storage	0,84	0,82	0,97	1,49	0,86	0,48

Entry	Current tariffs 2018	Postage				CWD
		E-E: 50-50	E-E: 40-60	E-E:0-100	E-E: ex-post	
Border point	1,08	1,83	1,44	-	1,72	1,94
Production point	1,41	1,83	1,44	-	1,72	1,75
Storage	1,16	0,92	0,72	-	0,86	0,88

% change in average tariff

Exit	Current tariffs 2018	Postage				CWD
		E-E: 50-50	E-E: 40-60	E-E: 0-100	E-E: ex-post	
Border point		-4%	12%	74%	0%	9%
Industrial point		-7%	9%	68%	-3%	-7%
Local distribution point		-14%	1%	57%	-10%	-18%
Storage		-3%	15%	77%	2%	-43%

Entry	Current tariffs 2018	Postage				CWD
		E-E: 50-50	E-E: 40-60	E-E:0-100	E-E: ex-post	
Border point		70%	33%	-100%	60%	80%
Production point		29%	1%	-100%	22%	24%
Storage		-21%	-38%	-100%	-26%	-24%

% Revenue

Exit	Current tariffs 2018	Postage				CWD
		E-E: 50-50	E-E: 40-60	E-E: 0-100	E-E: ex-post	
Border point	25%	24%	28%	44%	25%	27%
Industrial point	8%	7%	8%	13%	7%	7%
Local distribution point	23%	20%	23%	36%	21%	19%
Storage	4%	4%	5%	7%	4%	2%

Entry	Current tariffs 2018	Postage				CWD
		E-E: 50-50	E-E: 40-60	E-E:0-100	E-E: ex-post	
Border point	8%	12%	10%	0%	12%	13%
Production point	14%	18%	14%	0%	17%	18%
Storage	18%	14%	11%	0%	13%	14%

CAA-results

Entry	Current tariffs 2018	Postage				CWD
		E-E: 50-50	E-E: 40-60	E-E:0-100	E-E: ex-post	
Before adjustments		0,5%	1,4%	9,1%	0,0%	0,2%
After adjustments		6,3%	5,6%	3,2%	6,1%	4,7%