

GAS TSO EFFICIENCY ANALYSIS FOR THE DUTCH TRANSMISSION SYSTEM OPERATOR

Post-audit results

BACKGROUND

ACM, the Dutch energy regulator, aims to include a static efficiency measure in its method of regulation for GTS, the Dutch gas TSO. Article 13 of the European gas Regulation 715/2009 amongst others stipulates that tariffs of a TSO shall reflect the actual costs incurred, insofar as those costs correspond to those of an efficient and structurally comparable network operator. As GTS is the only gas TSO in the Netherlands, ACM has no national direct comparator to determine whether the costs of GTS are efficient. For this reason ACM used the German gas TSO benchmark commissioned by Bundesnetzagentur (BNetzA) to determine the static efficiency of GTS. ACM has commissioned Frontier Economics ("Frontier") and Consentec to undertake a static efficiency analysis for GTS (Frontier/Consentec, 2016)¹.

ACM decided to undertake a post-run audit of the Frontier/Consentec (2016) report. In the following we describe the

- Scope of the post-audit,
- Audit findings and resulting adjustments,
- Post-audit efficiency scores for GTS for the final three models specified in Frontier/Consentec (2016).

SCOPE OF THE AUDIT

The international benchmarking project concerns sensitive economic and technical data from independent operators as well as proprietary codes from the consultants used for the calculations and analysis. The mode of audit was therefore defined as occurring only in the Frontier facilities in Cologne, on Frontier computers without internet connection in presence of Frontier staff. The audit was done by KPMG commissioned by Frontier.

The objective with the post-run audit was to validate that the reported scores in Frontier/Consentec (2016) indeed result from the application of the methods and parameters stated in the documentation with due diligence. It was not intended to

¹ Frontier Economics/Consentec, Gas TSO efficiency analysis for the Dutch transmission system operator, Report prepared for ACM, January 2016.

determine whether alternative specifications of data, process, methods or models could have resulted in other scores.

Figure 1 summarises the main steps of the audit.

Figure 1 Scope of audit

Item	Audit coverage
Costs	
Calculation of opex	Calculation of opex for German TSOs and GTS
Calculation of capex (depreciation, WACC*RAB)	Calculation of capex for German TSOs and GTS
Including country specifics	The benchmarking study took into account country specifics from GTS, which resulted in an adjustment of opex and capex. The audit covers if the country specifics were correctly deducted from opex and capex.
Outputs	
Calculation of output parameters	During the project data were collected from GTS for defining output parameters. These data were partly taken directly or transformed to calculate the relevant output parameter for GTS. The calculation is summarised in one excel file. The audit covers if the data from GTS were correctly transformed into output parameters.
Calculation of “transport momentum”	The output parameter “Transport momentum” was calculated separately using a LP tool. The audit covers if the data from GTS were correctly transformed into “transport momentum”.
Outputs German gas TSOs	The outputs from the German gas TSOs were already consulted with the companies during the German benchmarking study. The audit covers only if the data from the German gas TSOs were correctly used for the calculation of the efficiency scores.
Efficiency calculation	
Input and output used	The audit checked if the inputs and outputs calculated in previous steps were correctly included in the DEA efficiency calculation.
Correct calculation	The audit covers if the DEA calculation for the final models was done correctly.

Source: Frontier Economics

AUDIT FINDINGS AND ADJUSTMENTS

Figure 2 summarises the finding of the audit having an impact on cost data for GTS and the German TSOs and the resulting adjustments.

Figure 2 Audit finding and adjustments

	Reference	Description of finding	Adjustment
1	GTS - OPEX for security of supply (Frontier/ Consentec, 2016: p.41)	GTS' operating costs from the difference in the task for security of supply of € [●] should have been reduced according to Frontier report (p.41). For calculation purposes of input parameters "Opex_Anlage III-V ACM_prorata JV – 2015 08 24.xlsx", however, a cost reduction of € [●] million was considered.	Adjustment of correction for security of supply to € [●]million
2	German TSOs - Cost-reducing revenues (Frontier/ Consentec, 2016: p.24)	Benchmarked opex for one German TSO overestimated by less than EUR [●].	Adjustment in German TSO costs
3	CAPEX - German TSOs - Land properties	As described in Frontier/Consentec (2016: p 27) "Terreinen" was eliminated from GTS' RAB. No similar adjustments have been applied to the RABs of the German TSOs, leading to a different treatment of land properties between GTS and German TSOs.	Elimination of "Land properties" from German gas TSOs RAB
4	Investments in asset class 6 from 2005 until 2012 counted twice	A linking error caused asset class 6 from GTS being counted twice for the period from 2005 to 2012 (however only until 2010 relevant). Therefore CAPEX for this asset was counted twice.	Elimination of double counting for 2005-2012
5	Compressor Wireingermeer	Non inclusion of one of the adjustments for GTS (taking out investments for the compressor Wieringermeer partially). Sign error for compressor adjustment 2005-2010.	Inclusion of compressor and correction of sign error
6	Partial consideration of LNG assets	Instead of taking into account only the 23% of the LNG assets which are relevant to the benchmarking, the full historic investments have been taken into account.	Reduce investments in LNG assets to 23%
7	Exclusion of asset class 37 (GTS)	The sum across all sheets is sensitive towards the order of sheets in the capex calculation excel file. This caused that asset class 37 (in sheet TT 03) was not considered in the CAPEX calculation.	Inclusion of asset class 37 (GTS)

Source: Frontier Economics

POST-AUDIT EFFICIENCY SCORES

Figure 3 summarises the financial impact of the adjustments from Figure 2 on GTS' costs (and German TSOs' costs on average), which were used for the calculation of the post-audit efficiency scores of GTS.

Figure 3 Financial impact from adjustments on costs used for calculation of efficiency scores

Item	Cost adjustment
GTS total costs (Frontier/ Consentec 2016)	€ [•]
1 GTS - OPEX for security of supply	+ € [•]
4 Investments in asset class 6 from 2005 until 2012 counted twice	- € [•]
5 Compressor Wireingermeer	- € [•]
6 Partial consideration of LNG assets	- € [•]
7 Exclusion of asset class 37 (GTS)	+ € [•]
GTS total costs (post audit)	€ [•]
German TSOs	
2 German TSO - Cost-reducing revenues	+ € [•]
3 CAPEX - German TSOs - Land properties	- [•]% (on average)

Source: Frontier Economics

The results of the post audit efficiency calculation are summarised in Figure 4. The findings and adjustments from the audit resulted in an adjustment of GTS efficiency scores (on average) of – 2.7 %.

Figure 4 Post-audit efficiency scores

	Model A	Model B	Model C
Output 1	Connection points		
Output 2	Pipeline volume		Transport momentum
Output 3	Supply area	SQRT (TM*area)	Supply area
Average efficiency	95.5%	88.0%	96.0%
Number of outlier	2	1	2
Minimum efficiency*)	72.7%	59.6%	85.3%
Efficiency GTS (post-audit) *)	72.7%	76.6%	87.5%
<i>Efficiency GTS (Jan 2016)</i>	<i>75.3%</i>	<i>79.2%</i>	<i>90.5%</i>

Source: Frontier Economics

Note: *) based on DEA (NDRS) excluding outlier