



Assessing the impacts of network expansion in case of 2TSO

Case study on Hungarian Slovakian gas transmission pipeline

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SECURITY OF SUPPLY • AFFORDABILITY • QUALITY OF LIFE

Overview

- HU TSO tariff conditions, key aspects
- HU/SK interconnector details
- 2 TSO
 - Challenges, tariff issues
 - InterTSO compensation mechanism
- Outlook - TAR NC



HU tariff conditions, key aspects

- **Regimes:**
 - Entry/exit access model
 - Neither entry nor exit fees shall be paid in the connection point of the 2TSO
 - Postage stamp tariff model
- **Tariff model technical parameters:**
 - Capacity/commodity split: ~ 90% / 10%
 - (Capacity) Entry/exit split: 50% / 50%
- **Tariff calculation:**
 - Entry: separate tariffs for import, dom. production, storage (from SSO to TSO)
 - Exit fee: reflects all of the exit points
 - RO, SRB interconnector fees



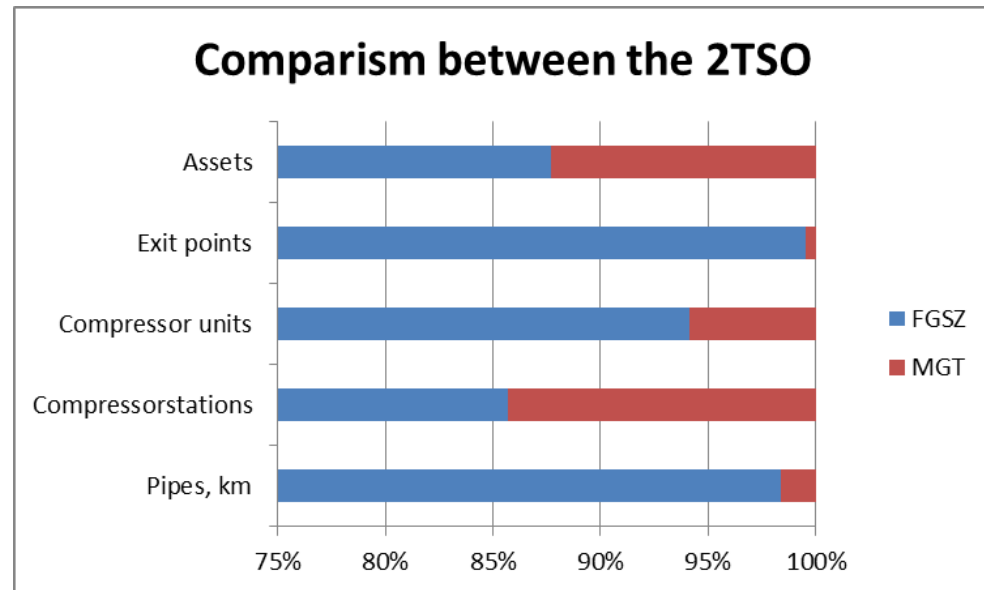
HU/SK interconnector details

- Development from 2012-14
 - Commercial operation from 1st of July 2015
 - **Technical parameters:**
 - Pipe: 94 km, DN 800, PN 75
 - 1 compressor station with 2 units (3,5 MW*2)
 - Capacity: 500.000 m³/h (SK>HU), 200.000 m³/h (HU>SK)
 - **Financial parameters:**
 - Total investment: 160 million EUR
 - Non-reimbursable EU financial support 30 million EUR
 - **Main regulatory challenges:**
 - Within one entry/exit system 2 TSO licensees
 - Data availability: commercial operation started in July
-



2 TSO – challenges, tariff issues

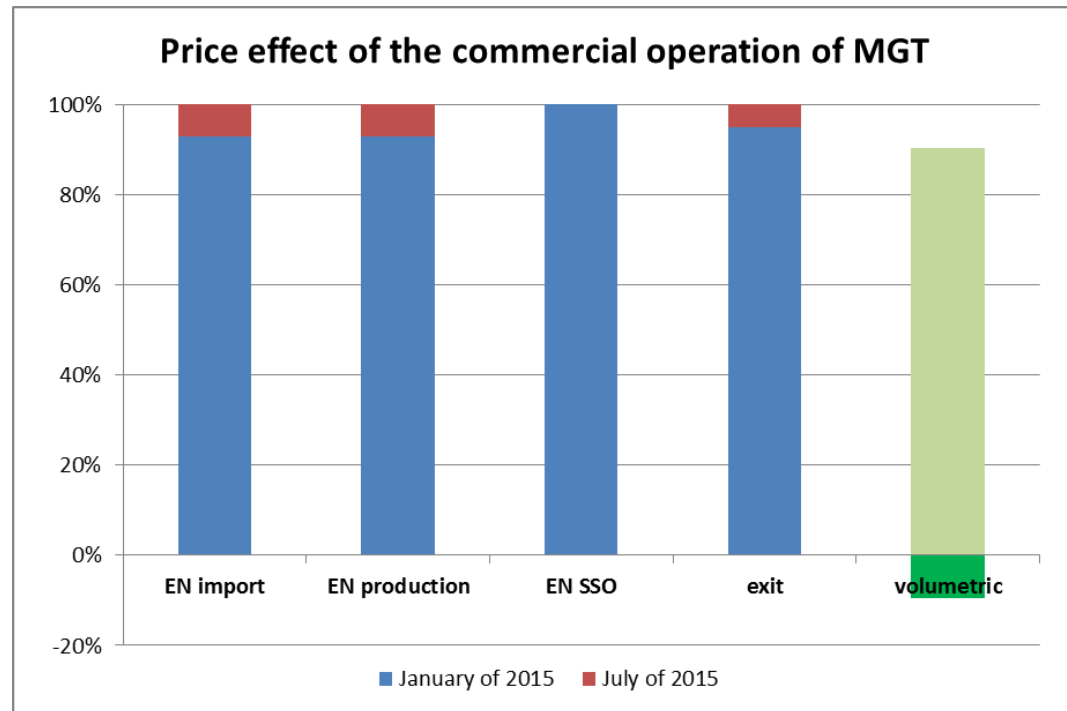
- **Different company size and asset age:**
 - One entry/exit access and tariff model
 - Evaluation of economic of scale AND efficiency
 - New infrastructure vs older
- **Data availability and cross-checking:**
 - Accounting values ✓
 - Financial planning data ?
 - Benchmarking



2 TSO – challenges, tariff issues

To determine the tariffs, which cover both TSOs allowed revenues:

1. Determination of allowed revenue for the new TSO (OPEX, CAPEX,...)
2. Set the volumes and the capacities
3. Applying the tariff methodology (Entry/exit split, volumetric fee,...)



InterTSO compensation mechanism

The HU access and tariff model means:

- $capacity\ fee_{point\ type} = \frac{Allowed\ Rev_{TSO1} + Allowed\ Rev_{TSO2}}{capacity_{TSO1} + capacity_{TSO2}}$
- $volumetric\ fee = \frac{Allowed\ Rev_{TSO1} + Allowed\ Rev_{TSO2}}{volume_{TSO1} + volume_{TSO2}}$

In the case of using both TSOs' system the shipper shall pay:

- Entry fee for TSO1
- Exit fee for TSO2
- And volumetric fee for TSO2

Due to the fees cover both TSOs allowed revenues, the revenues shall be split between the TSOs => interTSO compensation mechanism was set up to balance the TSO's financial positions



InterTSO compensation mechanism

- **Regarding the capacity fees:**
 - The aggregated capacity revenue is divided:
 - According to the TSO's share of the total allowed capacity revenues
 - The revenue based taxes are taken into account as a modifier
- **Regarding the volumetric fees:**
 - The aggregated revenue after the volume measured at the connection point is divided:
 - According to the TSO's share of the total compressor performance



InterTSO compensation mechanism

Responsibilities of the NRA:

- Define the compensation settlement
 1. Monthly settlement: before the financial year in line with the expected capacity bookings
 2. Supervision: during the financial year cross-checking the positions of the TSOs
 - If there is a significant gap, there is an opportunity to modify the monthly compensation payments and apply one time correction
 3. Yearly settlement: After the closed financial year calculation of the real positions
- **Regular data collection from the TSOs.**

The settlements are taken place between the licensees.



Outlook - TAR NC

- Article 10.
- Applying the same RPM => need for setting a compensation mechanism
- The applied tariff methodology can be differ, but it is needed to be analyzed and underpinned the results
 - ie. Evade cross-subsidy
- Need for consultation



Annex1: Effect of the new regulatory period – change of the calculated transmission tariffs, €/MWh

N: -22%
X: -46%

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X: -46%

N: -22%
X: -46%

	new	old
AT/HU	0,68	0,88
backhaul	0,39	0,73

	new	old
SK/HU	0,68	0,88
HU/SK	0,39	0,73

	new	old
UA/HU	0,68	0,88
HU/UA	0,39	0,73

	new	old
UGS_N	0,07	0,07
UGS_X	0	0,32

	new	old
DOM_N	0,61	0,79
DOM_X	0,39	0,73

	new	old
HR/HU	0,68	0,88
HU/HR	0,39	0,73

	new	old
HR/HU	0,68	0,88
HU/HR	0,39	0,73

	new	old
HU/SRB	1,16	1,50

	new	old
RO/HU	1,03	1,22
HU/RO	0,73	1,07

N: -22%
X: -46%

X: -22%

N: -16%
X: -31%



Annex2: Numerical exercise of the interTSO compensation mechanism

Sold capacity > expected

	Fee calculation			Revenue calculation		+/-	Compensation mechanism		+/-
	Allowed rev.	Expected capacity sales	Allow rev. / capacity	Sold capacity	Capacity revenue		Compensation settlement	Financial positions	
	(1)	(2)	(3) = (1) / (2)	(4)	(5) = (4) * cap. fee		(6) = (5) / (1)	(7)	
TSO1	60 000	1 000	60	1 150	69 633	16%	3 578	66 055	10%
TSO2	6 000	90	67	50	3 028	-50%	-3 578	6 606	10%
sum	66 000	1 090	61	1 200	72 661	10%	0	72 661	10%

$$\text{Compensation settlement} = \text{Capcaity revenue}_{TSO1} - \left(\frac{\text{Allowed rev.}_{TSO1}}{\sum \text{Allowed rev.}} * \sum \text{Capcaity revenue} \right)$$

Sold capacity < expected

	Fee calculation			Revenue calculation		+/-	Compensation mechanism		+/-
	Allowed rev.	Expected capacity sales	Allow rev. / capacity	Sold capacity	Capacity revenue		Compensation settlement	Financial positions	
	(1)	(2)	(3) = (1) / (2)	(4)	(5) = (4) * cap. fee		(6) = (5) / (1)	(7)	
TSO1	60 000	1 000	60	950	57 523	-4%	5 229	52 294	-13%
TSO2	6 000	90	67	0	0	-100%	-5 229	5 229	-13%
sum	66 000	1 090	61	950	57 523	-13%	0	57 523	-13%

