

REKK POLICY BRIEF

06
2016

ÁKOS BEÖTHY - BORBÁLA TÓTH - PÉTER KADERJÁK - PÉTER KOTEK

WAS IT WORTH BUILDING THE SK-HU NATURAL GAS INTERCONNECTOR?

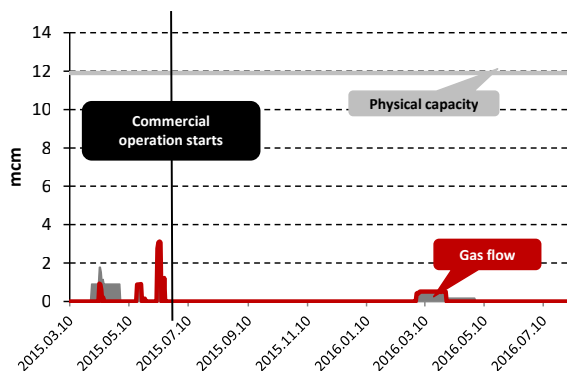
The 2011 Hungarian energy strategy considered the SK-HU gas interconnector as a priority infrastructure project. The interconnector was expected to serve three main objectives: improve Hungary's gas market integration with Western Europe, improve Hungary's bargaining position vis-à-vis Russia for the renegotiation of long term contracts as they were set to expire in 2015 and strengthen the resilience of the Hungarian gas transmission network (i.e. security of supply).

Earlier REKK gas market modelling conducted in 2012 supported the economic rationale for the SK-HU interconnector, not only for security of supply reasons but also from a market perspective. Modelling assumptions included a uniform entry-exit tariff of 1-1 EUR/MWh and a spread between TTF and oil indexed long term contracts that surpassed the tariffs. In 2012 estimates for Hungarian demand never fell below 10 bcm/year. Modelling also assumed firm oil-indexation for Russian gas pricing without downward pricing flexibility. According to modelling, the implementation of the SK-HU would ease the congestion on the AT-HU interconnector and facilitate the flow of additional spot gas to Hungary and further south of Hungary.

However in practice the utilization has differed from modelling forecasts; since the commissioning of the SK-HU interconnector in July 2015 practically no flows have occurred, and still Hungarian wholesale natural gas prices have dropped significantly. Has the commissioning of the SK-HU interconnector contributed to this decrease in wholesale gas prices even without its physical utilization?

In this policy brief we offer three possible explanations for the low pipeline utilization and argue that construction of the interconnector was more than beneficial for Hungary by opening wholesale competition against the dominant supplier and working as a bargaining chip for the government in the 2015 renegotiation of the Russian LTC. We estimate that the 120 MEUR Hungarian investment into the SK-HU interconnector was paid back to Hungarian customers in less than six months.

Apart from the gas flows testing the pipeline before the start of its commercial operation, no have volumes arrived to Hungary via this interconnector.

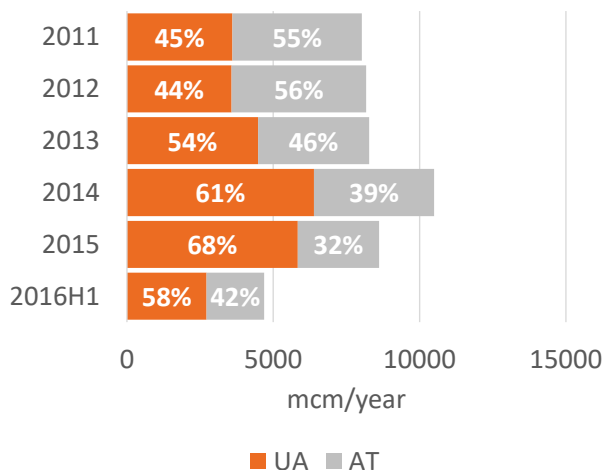


TOTAL PIPELINE FLOWS ON THE SK-HU INTERCONNECTOR
source: MGT

Market fundamentals have changed

The FID of the SK-HU interconnector was signed in 2012. During the construction in 2013-2014, a number of market players declared interest in booking for long-term SK-HU capacities. However, when the pipeline began commercial operations, the companies did not follow through with bookings. It appears that there was a narrow window of opportunity in late 2014 for market players to benefit from long-term capacity bookings when the Hungarian market offered a premium and a possible route to supply Ukraine. However, following a 6 month delay in commissioning due to technical and regulatory issues, market conditions changed and interest in new capacities ceased. In 2013 the Russian LTC price became more attractive and for a first time after the Eastern import volumes in Hungary exceeded the Western volumes.

The 2015-2016 European natural gas market is profoundly different from 2012 conditions. An oversupply of natural gas due to an LNG glut combined with the fall in demand across Europe has transformed the tight gas markets into a



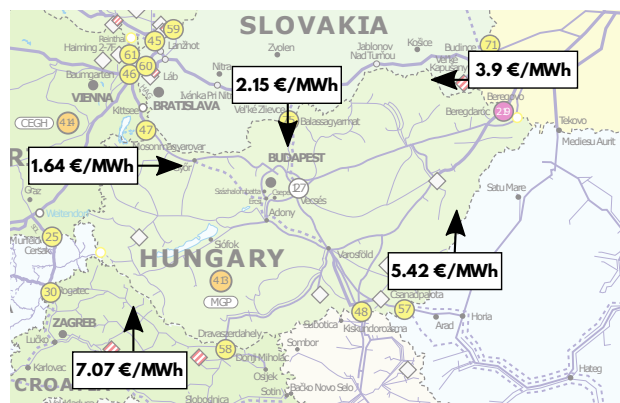
TOTAL PIPELINE FLOWS ON BREGDARÓC AND MOSONMAGYARÓVÁR ENTRY POINTS TO HUNGARY
source: FGSZ

buyer's market. Moreover, the Brent crude — decisive for the pricing of long term supply contracts — collapsed in 2014-2015, making oil-linked contracts far cheaper toward the end of 2015 and into 2016. In Hungary, gas consumption dropped nearly 25% from 12 bcm/year in 2011 to 9 bcm/year in 2015.

We conclude that the main reason for under-utilization is because that the Hungarian market can be supplied using the traditional routes (UA-HU and AT-HU) while current low gas prices and regional spreads offer no possibility for traders to capitalize on the SK-HU pipeline.

The regulated tariffs do not undermine competitiveness

One might argue that high regulated tariffs could potentially deter utilization of an interconnector. In this case, regulated cross-border tariffs on the infrastructure are not exceedingly high compared to other interconnector points in Hungary. On the entry side, a uniform tariff is used for all interconnector points in Hungary. On the Slovakian side, the exit tariff is below the region's average. Comparing supply routes to Hungary, the SK-HU is the second cheapest option to bring gas to the country (the lowest tariff found on the AT-HU border). It can be concluded that the tariff is not distortive to the competitiveness of the interconnector per se.



TRANSMISSION TARIFFS (ENTRY+EXIT) TO HUNGARY AS OF 2015
source: FGSZ, neighboring TSO's, REKK calculations, ENTSO-G capacity map

The SK-HU interconnector can act as an alternative supply route to the AT-HU interconnector from Germany via the CZ-SK-HU route, but current applicable tariffs make this 1.5-2 EUR/MWh more expensive compared to AT-HU. Another possibility for higher utilization is to relieve congestion of AT-HU, allowing spot gas from the CEGH virtual hub to arrive in Hungary via the AT-SK-HU route. However, congestion in the AT-HU interconnector is far less common today than it was in 2012. Still a clever seasonal tariff setting could allow physical utilization of the pipeline enhancing spot trade on the surplus infrastructure in e.g cases when either on the AT-HU or on the SK-UA physical congestion occurs.

Still a clever seasonal tariff setting could allow physical utilization of the pipeline enhancing spot trade on the surplus infrastructure in e.g cases when either on the AT-HU or on the SK-UA physical congestion occurs.

Third party access is not harmed

Underutilization of the interconnector could also be due to regulatory shortcomings that distort third party access. However for the SK-HU interconnector compliance with the Third Package was assured in 2014 when the Hungarian state purchased MVM's shares in the holding company owning and operating the pipeline. No market distorting long-term capacity bookings exist on the pipeline and the access to the infrastructure is transparent, available to all market participants without discrimination. In July 2015 only unbundled capacities could be booked, but by late 2015 capacities were bundled (ie. the capacities on the Balassagyarmat point (Eustream-MGT) are offered together with Vecsés point (MGT-FGSZ)). In our view, third party access to the interconnector is transparent and non-discriminatory.

It was worth it even if we see no gas flowing

The recent renegotiation of the oil-linked LTC made Russian gas competitive with the spot gas sources available to the Hungarian market. The Hungarian LTC was set to expire in December 2015, but a major re-negotiation took place between Russian President Vladimir Putin and Hungarian Prime Minister Viktor Orbán earlier that year. According to the agreement, previously unconsumed TOP quantities of the LTC could be rolled over and used up. The presence of alternative supply routes (notably the SK-HU interconnector) provided a bargaining chip for the Hungarian government for better gas prices. In Q3 2012, natural gas traded in Hungary had a premium of 7 EUR/MWh to natural gas traded in Germany. By the time SK-HU commercial operations started in July 2015, this premium narrowed to 3 EUR/MWh. The DE-HU spread inherently filters global market changes such as oversupply and oil price effects because these affected both markets more or less equally. Therefore, the variation in spreads can only be attributed to changes that affected Hungary but not Germany, eg. new infrastructure, changes in supply structure or demand. We argue that the renegotiation of the LTC is the main driver of the narrowing spread and that the physical option provided by the SK-HU interconnector played a significant role in the success of the renegotiation. Assuming the ~87 TWh annual Hungarian gas consumption and the price decrease of 3-4 EUR/MWh an annual gain of 260-340 M€ (~80-100 Bn HUF) can be attributed to the new pipeline. This infers that even in the absence of physical flows, the cost of investment was recovered in less than six months.

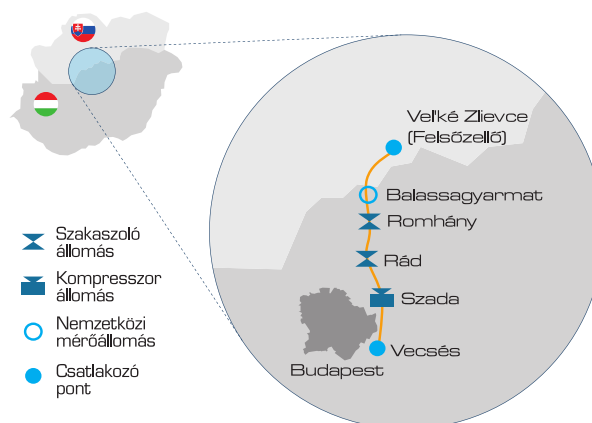
HISTORY OF THE INTERCONNECTOR

Magyar Gáz Tranzit (MGT) was created in 2012 to construct and operate the interconnector on the basis of MVM OVIT Zrt, a subsidiary of MVM, the major Hungarian state-owned electricity wholesale company. The Hungarian state has gradually increased its ownership in the company, by first acquiring a 50% share in early 2012 via the MFB (Hungarian Development Bank, a fully state-owned institution) and later purchasing all shares of MVM and MFB in July 2014. The rationale for the purchase of MVM shares was to ensure compliance with the ownership unbundling requirements of the Third Energy Package.

The company solely owns and operates the Balassagyarmat-Vecsés pipeline, connecting the systems operated by Slovakian Eustream and Hungarian FGSZ. The DN 800 pipeline spans 92 km in Hungary and an additional 19 km in Slovakia to Veľké Zlievce. A single compressor station located near Szada, Hungary housing two 3.5 MW compressors ensures the 75 bar pressure in the pipeline. The interconnector allows the bi-directional transmission of 127 GWh/day (~12 mcm/day) and an annual capacity of 46 TWh (~4,4 bcm/year). Investment cost totalled ~170 MEUR, the EU provided 30 MEUR via the EEPR facility, Slovakia paid 21 MEUR, and Hungary paid 119 MEUR.

As the high-pressure gas pipelines can only be operated by a TSO according to the Gas Act of Hungary, MGT was granted a TSO license by the Hungarian regulator in May 2015. An Open Season procedure was conducted in late 2014 allowing long-term capacity bookings on the interconnector. Contrary to typical open season procedures which aim to provide financing for the investment by offering long-term bookings, the interconnector had already secured financing from EU sources and the Hungarian state, and construction already nearly completion. Subsequently the procedure was cancelled by the Hungarian regulator.

A MAGYAR-SZLOVÁK GÁZVEZETÉK



SLOVAKIA-HUNGARY GAS INTERCONNECTOR
source: MGT

Authors



Péter Kaderják is the Director of REKK at the Corvinus University of Budapest. He received his MSc in economics from the Budapest University of Economic Sciences in 1987. In 1998 he was appointed as Chief of Cabinet of the Minister of Economic Affairs and started to work on the liberalisation of the electricity

and gas sectors in Hungary. In January 2000 he became the President of the Hungarian Energy Office, the national energy regulator. Between 2000 and 2004 he also served as the Chairman of the Energy Regulators Regional Association (ERRA), an association of energy regulatory institutions of countries from Central and Eastern Europe, the CIS and South East Europe. Since 2004 he has been serving as Training Director for ERRA's in-house energy regulatory trainings. He is also directing a postgraduate program in Energy Economics at Corvinus University since 2010. He is research partner in the "European Energy Institute" at University of Leuven and a regular lecturer at the Florence School of Regulation. He has directed several recent research efforts with regional relevance. In 2011 he was appointed as alternate member of ACER's (Agency for the Cooperation of Energy Regulators) Board of Appeal.



Ákos Beöthy earned his Master's degree in economics and international relations in 2001 from Budapest University of Economic Sciences and Public Administration. He worked for the international section of business daily Világgazdaság from 2000, in the position of editor from 2003 and as

deputy head of foreign desk from 2006. As a winner of the Alfred Friendly Press Fellowship, he spent 6 months in the United States reporting for The Philadelphia Inquirer in 2008. He earned a post-graduate diploma in energy economics from Corvinus University of Budapest in 2013. He has joined REKK in 2014.



Péter Kotek graduated in 2009 at the Corvinus University of Budapest as an economist, majoring in market analysis. He joined REKK in the same year as a research associate. From 2015, he is working as a senior research associate. His areas of interest are ancillary services market in electricity, LNG and gas storage markets regarding gas markets.



Borbála Takácsné Tóth has worked with REKK since its creation in 2004. In 2001 she received an M.A. in International Relations and European Studies at the Central European University in Budapest. Borbála was educated as an economist and received her degree from the Budapest University of Economic Sciences in 1998. She

spent 5 years as a civil servant in government administration mostly in the field of energy regulation. Between 2001 and 2003 she was Head of the President's Secretariat responsible for international relations of the Hungarian Energy Office. In this capacity she worked closely with ERRA and CEER. With REKK she has been leading several international and national consultancy projects, with many using the European Gas Market Model as the primary analytic tool. Her main fields of expertise include: regional co-operations; security of supply issues; energy geopolitics; major infrastructure initiatives in the gas sector and incentives for investments; competition cases in the gas market; and the effect of gas release programs on competition in the gas market in Europe.

REKK FOUNDATION

The goal of the REKK Foundation is to contribute to the formation of sustainable energy systems in Central Europe, both from a business and environmental perspective. Its mission statement is to provide a platform for open-ended, European-wide dialogue between government and business actors, infrastructure operators, energy producers and traders, regulators and consumers, professional journalists and other interested private entities. The Foundation will develop policy briefs and issue papers with forward-looking proposals concerning challenges posed by energy and infrastructure systems and organize regional forums allowing stakeholders to become familiar with the latest technological and regulatory developments within the industry.

2016 © REKK Foundation