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BORBÁLA TAKÁCSNÉ TÓTH - PÉTER KOTEK - ADRIENN SELEI

IS RUSSIA TO BLAME FOR HIGH EUROPEAN GAS PRICES?

REASONS BEHIND THE HIGH GAS PRICES AND THE WAY AHEAD IN 2022

Since March 2021 the European wholesale natural gas price has rose steadily above the pre-COVID 2019 levels reaching hights never seen before, leading to gas to coal switch in the power production and demand reduction in industrial production. Analysing the underlying reasons, we found that the current EU gas price crisis is rooted in strong Asian demand related to the economic recovery from the 2020 COVID crisis, to falling domestic production in Europe which increases the exposure to global price shocks and is something that will persist in the future. The “perfect storm” circumstances allowed for Russia, the main import supplier to Europe to exercise substantial market power to manipulate EU gas prices by withholding additional supplies beyond the quantity of the long-term contracts. Our modelling results suggest that abandoning the Ukrainian route creates artificial bottlenecks in the pipeline system that might lead to decoupling of gas prices in Europe in 2022. Additional new volumes of any source would significantly dampen the prices.

BACKGROUND

During the last two years we have seen unprecedented volatility in natural gas prices.

In 2018 REKK investigated the potential causes of what was at that time an unprecedented price hike of 70 €/MWh across European gas exchanges in early March of that year. We concluded that the temporary price hike was due to:

(i) unscheduled drop of production in Norwegian offshore gas fields;

(ii) above average but not extreme winter demand;

(iii) lack of storage capacity in the UK;

(iv) the sudden need for Ukrainian traders to reschedule their portfolio[1]

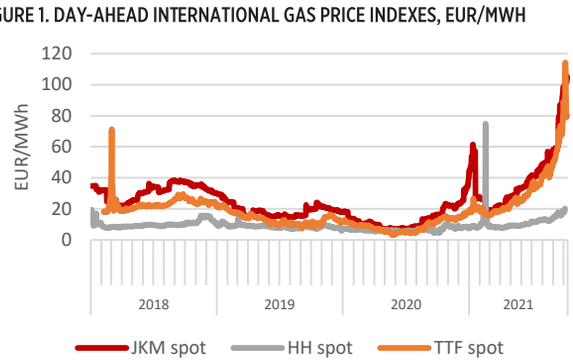
In late July 2020, the drop in global energy demand from restrictions related to the COVID-19 pandemic led to negative oil prices in the US. At that time REKK debated whether something similarly drastic could happen on the natural gas market, but EU demand only dropped 3-5% year on year. It was rather the oversupply of global gas markets precipitating a huge increase in European storage stocks at an unprecedented low price of 5 €/MWh.

Since March 2021 the TTF price has rose steadily above the pre-COVID 2019 levels (Figure 1). By September 2021 "the gas crisis" was featured across the media with high-level political reactions from Washington to Brussels and Moscow.[2]

REASONS OF A TIGHT MARKET

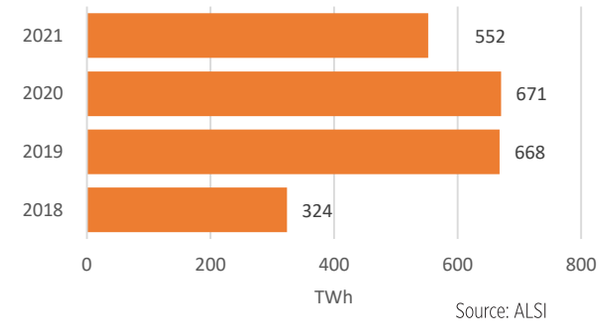
The most important driver is post-Covid economic recovery and demand growth in Asia that absorbed available spot LNG cargoes otherwise heading for Europe. European LNG imports are down in 2021 compared to the last two years but still far above 2018 and previous years. (Figure 2) The higher 2019-2020 LNG inflow to Europe is attributable to the oversupply on global LNG markets and the ability of Europe to absorb the additional quantities with large natural gas storage capacities.[3]

FIGURE 1. DAY-AHEAD INTERNATIONAL GAS PRICE INDEXES, EUR/MWH



Source: EIA, EEX, Investing.com

FIGURE 2. LNG INFLOW TO EUROPE 2018-2021, FIRST NINE MONTHS



Source: ALSI

As Figure 3 shows, the net storage injections in Europe for 2018 and 2019 were unusually high, resulting in a rarely seen near 100% filling rate. Aside from the favourable low gas prices, the other driving factor was (geo)political uncertainty for the markets related to unsuccessful negotiations between Russia and Ukraine for the renewal of the long-term transit contract.[4] In order to reduce the impact of a possible supply disruption via Ukraine from January 2020, traders and suppliers (among them Gazprom as well) preferred to have winter gas volumes already delivered to the storages near European consumers. The high storage levels at the beginning of 2021 coupled with the first upward movement in prices postponed injections into storage. With prices remaining high and even increasing throughout the summer, net EU storage injection was negative for the first 9-months of the year for the first time in the last four years. Then kicking-off the 2021/22 gas storage year the average filling rate has been about 75%.[5] A deeper look into the filling rate of the different storage sites reveals that Gazprom owned storages in Germany, the Netherlands and Austria are the ones remaining far below usual levels while the rest are filled.

1 Gazprom withdrew from an agreement to supply gas directly to Ukraine from 1 March 2018 following the first ruling of the Stockholm court of arbitration in December 2017. Gazprom's decision was related to the second decision of the Stockholm court over the Russian-Ukrainian contract that did not favour Gazprom.

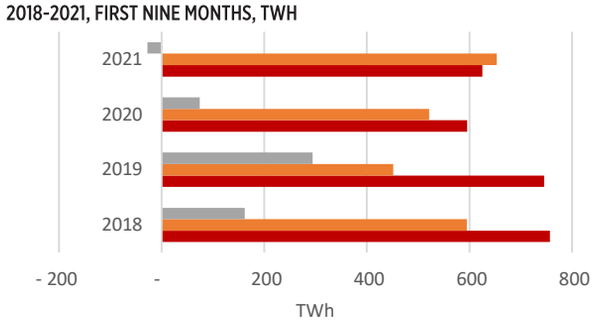
2 Reuters: Group of EU lawmakers seeks probe of Gazprom's role in gas price surge; Euractiv: EU prepares 'toolbox' of measures to tackle energy price spike

3 The working storage capacities in the EU 27 are about 1000 TWh - which is more than 20% of the 4500 TWh yearly EU gas consumption, - sufficient to cover the seasonal flexibility need of the EU. Additionally, Ukraine offers storage services (~300 TWh) under very favourable conditions since 2020.

4 The contract was signed 30th December 2019 just 24 hours before the previous contract expired.

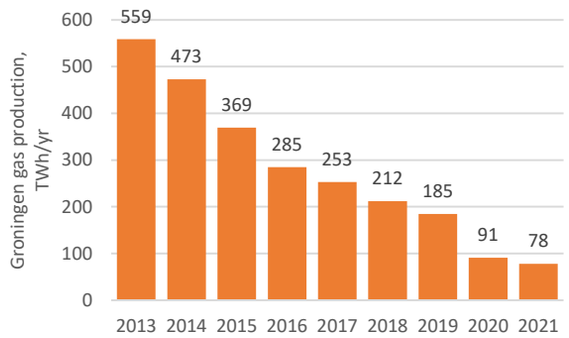
5 AGSI+ data on EU 27 1 October 2021 compared to 82-96% in previous years

FIGURE 3. INJECTION AND WITHDRAWAL TO EUROPEAN GAS STORAGE SITES 2018-2021, FIRST NINE MONTHS, TWH



Source: AGSI

FIGURE 4. GRONINGEN GAS FIELD PRODUCTION, TWH/YR



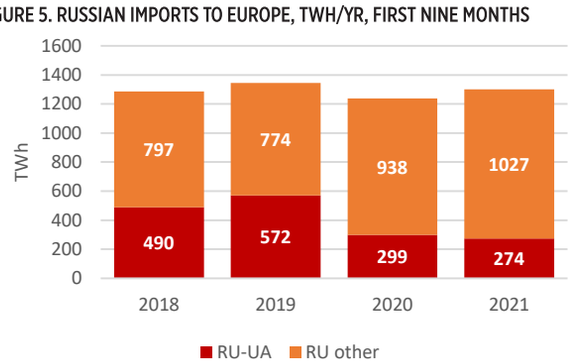
Source: NAM

The largest production site in the EU, the Dutch Groningen field has been in steady decline since 2010, a trend accelerated by the restrictions imposed from 2014, because of earth tremors in the region. Since 2016 there is a further curtailment of the production as part of a planned phase out in 2022.[6] Figure 4 shows that in the last two years production remained below 100 TWh/year and dropped to one-seventh since 2013. This combined with other depleting gas fields has increased EU 27 import dependency from 70% in 2013 to 90% in 2020.

Without significant change in consumption, imports would only need cover the drop in domestic EU production, but several traditional sources have been unavailable: LNG cargoes going to Asia; Norway producing close to the maximum; and the Trans Adriatic Pipeline 100 TWh annual capacity can only be lifted in the mid-term. Algeria has increased its deliveries to Southern Europe compared to previous years with its high-priced long-term contracts that were before uncompetitive now attractive in the high price environment. Surprisingly Russia, the largest source of EU imports, did not increase deliveries from year on year despite the price signal in 2021 reaching seven times 2020 spot prices. On the contrary, in October 2021 Gazprom did not book any capacity via the Ukrainian route for spot deliveries, indicating that it has no intention to sell additional volumes on the European market.[7] (Figure 5)

The tight EU market and high prices suit Russian economic interests for higher profits, especially considering the revised pricing formula indexing Russian long-term contracts to

FIGURE 5. RUSSIAN IMPORTS TO EUROPE, TWH/YR, FIRST NINE MONTHS



Source: ENTSOG Transparency platform

TTF spot prices, a change driven by buyers and the European Commission over recent years. For the past decade hub-based market prices were below the price of oil-indexed long-term contracts, but now it has flipped. Russia was rarely in the position to set prices in Europe as the marginal supplier, and in an oversupplied market it had to adjust its pricing formula to remain competitive and defend its market share. During this time, the deteriorating political situation around Russia – mainly related to the conflict with Ukraine - was not conductive to a cooperative joint planning approach for energy relations. Russia was more an observer as the European Commission unveiled the European Green Deal which made clear that natural gas as a fossil fuel would be phased of the long-term energy mix of its largest buyer, the EU, to achieve 2050 carbon neutrality.

It is no wonder that the Russian political communication on the gas price crisis came directly from Mr Putin at the top, criticizing the EU's green agenda, the push for renewables and the TTF pricing in the long-term contracts.[8] Moreover, the communication emphasised the potential return of long-term contracting to protect buyers from high prices.

WHAT CAN HAPPEN NEXT?

Based on the developments in September and October 2021, we tested how Russia might manipulate, under certain "perfect storm" conditions the gas prices in Europe. The following section provides a modelling-based scenario analysis using REKK's European Gas Market Model. The base case and the starting point of the analysis is modelling the "perfect storm", under the assumption of high Asian demand, tight LNG market and no transit flows for spot de-

6 Marshall Hall: Dutch Gas Production from the Small Fields:Why extending their life contributes to the energy transition; OIES Energy Comment July 2021

7 Booking can be checked on the rbp.eu booking platform

8 Russia insight: Putin on Record High Gas Prices
The Moscow Times: Putin blames Europe for Gas Price Crisis
The New Your Times: As Europe Faces a Cold Winter, Putin Seizes on the Leverage From Russia's Gas Output

FIGURE 6. MODELLED WHOLESALE GAS PRICES IN THE BASE CASE, €/MWH

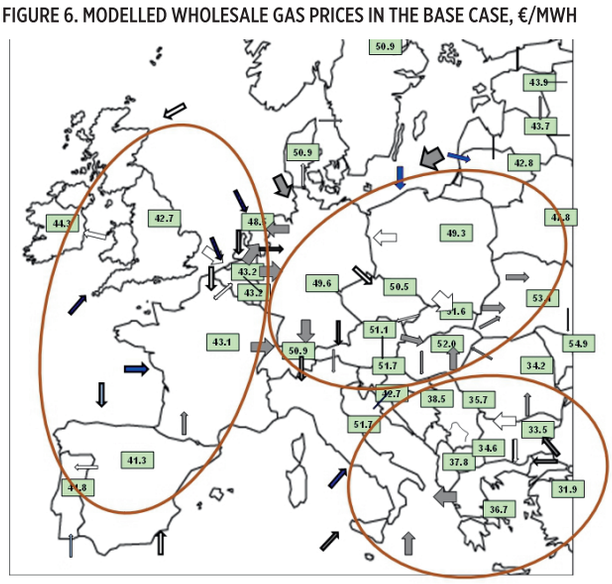
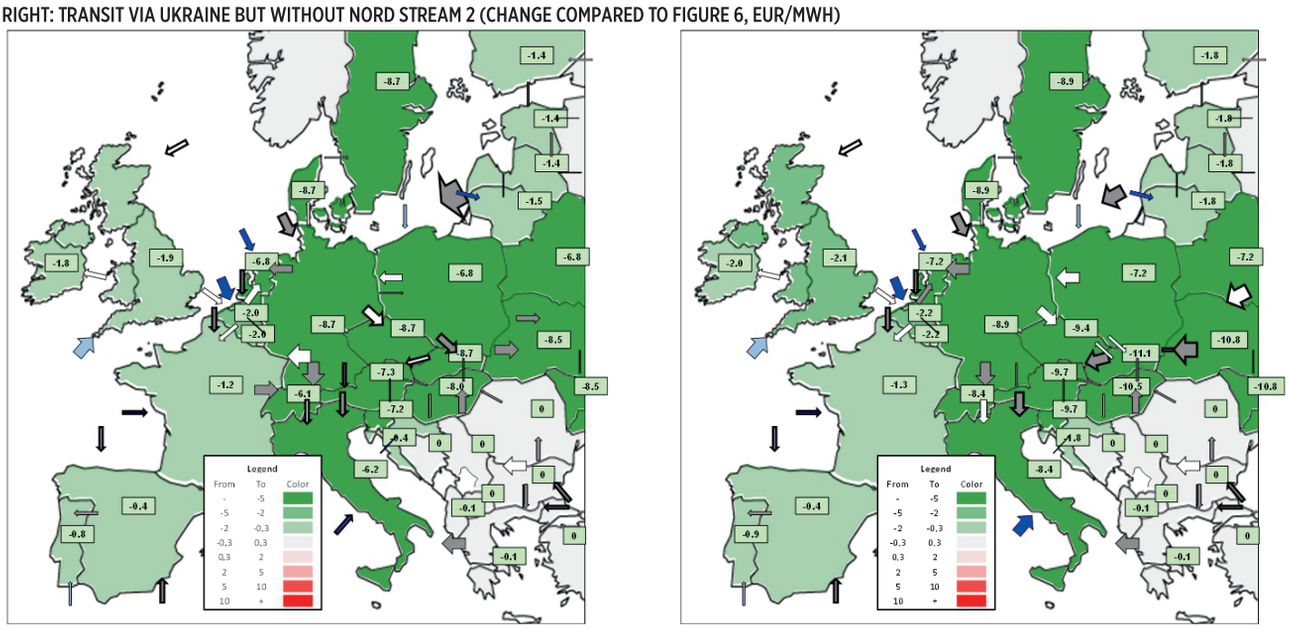


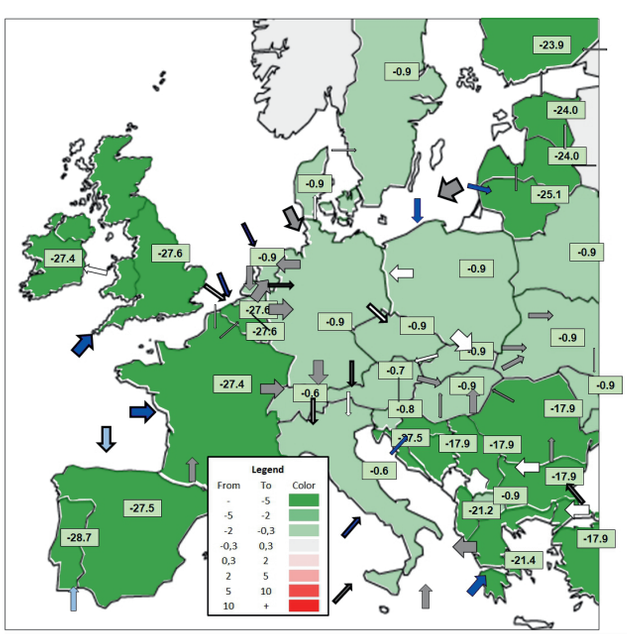
FIGURE 7. LEFT: NORD STREAM 2 ENTERS, BUT NO TRANSIT IN UKRAINE;
RIGHT: TRANSIT VIA UKRAINE BUT WITHOUT NORD STREAM 2 (CHANGE COMPARED TO FIGURE 6, EUR/MWH)



liveries via Ukraine. (Figure 6) Should this situation emerge in 2022, modelling suggests that European gas prices would decouple and three distinct price zones would form:

- Western Europe - LNG cargoes set the price;
- Central and Eastern Europe - scarcity of capacities would set prices higher than in Western Europe;
- South-East Europe - new deliveries on the Balkan route moderate prices even compared to Western Europe

FIGURE 8. HIGH LNG SUPPLY SCENARIO, WITHOUT NORD STREAM 2 AND UKRAINIAN TRANSIT



The next modelling run tested the possible impact of additional spot deliveries from Russia on EU gas prices. This includes the Nord Stream 2 which is now technically online and awaiting German regulatory approval for operation.[9] Compared to the current base case, indeed the additional deliveries via the Nord Stream 2 significantly dampen the prices in Europe as depicted on the left-hand side of Figure 7. Very similar if not even slightly better results could be achieved by simply utilizing the Ukrainian trunk system, as depicted on the right side of the same figure.

Therefore, we can conclude that it is not the Nord Stream 2 that would save European consumers from high prices but additional Russian deliveries through any route. This depends on whether the additional quantities are available in Russia and if it is willing to supply them. Russia has no obligation to provide anything above the level of long term contracted volumes, and while it could be a strategic decision to withhold supply and maintain high prices up in Europe, it is also financially attractive to sell the additional volumes in higher priced Asian markets, assuming available transport via pipeline or LNG.

Certainly by choosing not to ship additional quantities via Ukraine, Gazprom is creating more scarcity to pressurize Germany to accelerate the permitting procedure of Nord Stream 2.[10]

Again, the ability of Russia to maintain strong control over the European gas prices is a consequence of high Asian demand "eating up" available spot LNG cargoes. In the last two years Europe was lucky capitalizing on the oversupply of the global LNG market and pressure Russia to the point of price convergence with the US.

9 Euractiv: Germany has four months to certify Nord Stream 2 pipeline
10 Bloomberg: Russia Offers to Ease Europe's Gas Crisis, With Strings Attached

If the supply of LNG to Europe returned to its 2020 level, the situation in Europe would change as depicted on Figure 8. The LNG inflow could significantly reduce the prices in the coastal regions with direct access, however bottlenecks on the EU gas transmission system owing to the phase out of the Ukrainian route and Nord Stream 2 being offline lead to high prices in Central and Eastern Europe. The situation would therefore be much different from 2020 when European wholesale gas prices mostly converged.

CONCLUSIONS AND POLICY RECOMMENDATIONS

There is no threat of security of supply crisis in Europe the upcoming winter. The current EU gas price crisis is rooted in strong Asian demand related to the economic recovery from the 2020 COVID crisis. This situation is somewhat different from previous Asian gas price hikes in that European gas prices are in sync with the Asian price index. The main reason is falling domestic production, as well as the lower storage stocks in Europe, which increases the exposure to global price shocks and is something that will persist in the future.

In the current tight gas market situation in Europe, Russia, Europe's largest import supplier, has gained substantial market power to manipulate EU gas prices by withholding additional supplies beyond the quantity of the long-term contracts. The decision to not supply additional spot volumes via the existing Ukrainian route can be perceived as a direct blackmailing of Europe (and especially Germany) to accelerate the licencing procedure of the controversial Nord Stream 2 pipeline. The high-level political messaging from Russian decision makers also demonstrate the importance of the position, illustrated by sending additional volumes via the Yamal pipeline which would immediately reduce prices.

The solution proposed by Mr Putin is to commit to buy more Russian long term contracted quantities. This would have a lock in effect and risks to lead to stranded costs for LTC holders when liquidity of the markets returns, similar to the situation following the 2008 financial crisis.

It is to be seen what lessons will be learnt from the current gas price crisis on risk management, contract pricing and flexibilities on every level of the natural gas trading: from end users to utilities, midstream traders and even for governments[11] / wholesale companies being in direct negotiations of long-term contracts with the producers.

With or without long-term contracts, Europe must acknowledge its vulnerability to global shocks and the market power of its biggest supplier. In this respect, regulation should allow member states to protect vulnerable EU consumers (household heating) following European Commission guidance to temporarily relieve prices through fiscal policy and targeted energy efficiency.

The regulatory conditions of the Nord Stream 2 pipeline are worth to be developed carefully: the new design should encourage that the Russian import monopoly of Gazprom is lifted in Russia, that would ease the market power of the main import supplier.[12] Therefore, it is for the benefit and in the interest of the European consumers that the European regulation – especially unbundling and third party access rules - on Nord Stream 2 is applied rigorously.

It is also in the interest of the European consumers that the capacities of the Ukrainian route are utilized, as without them the internal congestions in the European system can lead to decoupling of gas wholesale prices in Europe.

If the high natural gas prices prevail in the midterm, it could strengthen the mistrust of the commodity and speed up switching away from gas in all sectors. Phasing out of gas fired power plants used to provide flexibility to the electricity system might temporarily be substituted by coal fired generation, that we already witness as clean dark spreads grow positive and clean spark spread negative.[13] On the long run, with a decarbonization agenda more innovative new solutions can gain momentum. In Europe there is no chance that the political commitment to decarbonize would deviate and allow coal fired power production back in the energy mix.

It is not the lack of natural gas reserves that drives scarcity it is banks unwilling to finance new fossil projects due to climate considerations. This attitude towards natural gas might change to support a smooth transition and coal to gas switch in Asia.

Contrary to Asia, Europe should concentrate on reducing natural gas demand through energy efficiency and renewable investment to re-establish an equilibrium under the relatively new condition of depleted own production. These long-term demand adjustments however will not have impact on this winter's gas prices.

11 First reactions from Bulgaria on the urge of the Russian Ambassador to sign a long term contract with Gazprom are rather sceptic and cautios:
Euractiv: Russia offers 'poor' Bulgaria new long-term contract with Gazprom

12 There are developments at the Russian gas market to break the export monopoly of Gazprom. In LNG export right have been granted third parties (Novatek and Rosneft) already in 2013. Recently Rosneft has applied for export opportunity on Nord Stream 2:
Offshore Technology: Rosneft vying to export gas to Europe via Nord Stream 2 pipeline

13 This is due to the fact that gas prices increased more than coal and CO2 prices and the competitiveness of gas fired power generation against coal has ceased to exist.

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.

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. Borbala 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.

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. He has participated actively in REKK's gas market modelling work since 2015.

Adrienn Selei has been working for REKK since 2011. Her work especially includes gas market modelling, but she has been also involved in different works in the field of electricity markets (mainly analysing system reserves market and topics of market integration). She has already finished her Phd studies in Economics (at Corvinus University of Budapest). Due to her studies and teaching experience she has a profound knowledge in industrial economics and market modelling.