

ECRB Market Monitoring Report

Gas Wholesale Markets in the Energy Community

Reporting Period 2019 – publication December 2020

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INTRODUCTION

1. About ECRB

The Energy Community Regulatory Board (ECRB) operates based on the Energy Community Treaty. As an institution of the Energy Community ECRB advises the Energy Community Ministerial Council and Permanent High Level Group on details of statutory, technical and regulatory rules and makes recommendations in the case of cross-border disputes between regulators.¹ ECRB is the independent regional voice of energy regulators in the Energy Community. ECRB's mission builds on three pillars: providing coordinated regulatory positions to energy policy debates, harmonizing regulatory rules across borders and sharing regulatory knowledge and experience. ECRB also has a number of legal responsibilities such as issuing opinions on draft certification decisions of Contracting Parties' regulatory authorities or monitoring the implementation of Network Code Regulations.²

2. Background

Market monitoring is a core element of regulatory responsibilities. Only in-depth knowledge of market performance, stakeholder activities and development trends allow regulators to create an effective market framework that balances the needs of market players and is able to promote competition, customer protection, energy efficiency, investments and security of supply at the same time. The relevance of regulatory market monitoring is not only recognized by the Energy Community *acquis communautaire* ('acquis') but is also since years a central ECRB activity.

3. Scope

The present report covers the Energy Community Contracting Parties with functioning gas markets: **Georgia, Moldova, North Macedonia, Serbia and Ukraine**, as well as the Energy Community observers – **Armenia and Turkey**. It describes the status quo of gas markets on wholesale level with the aim to identify potential barriers and discuss recommendations on potential improvements. Data presented in this report refers to year **2019**.

4. Methodology

Data and analysis displayed in this report is based on information provided by the regulatory authorities of the analyzed markets. Part of the information has been collected for the purpose of *Annual Report on the Results of Monitoring the Internal Electricity and Natural Gas Markets in 2019* of the Agency for Cooperation of Energy Regulators (ACER).³

¹ www.energy-community.org. The Energy Community comprises the EU and Albania, Bosnia and Herzegovina, North Macedonia, Georgia, Kosovo*, Moldova, Montenegro, Serbia and Ukraine. Armenia, Turkey and Norway are Observer Countries. Throughout this document the symbol * refers to the following statement: *This designation is without prejudice to positions on status, and is in line with UNSCR 1244/1999 and the ICJ Advisory Opinion on the Kosovo declaration of independence.*

² For more information on ECRB visit <https://www.energy-community.org/aboutus/institutions/ECRB.html>.

³ https://www.acer.europa.eu/Official_documents/Acts_of_the_Agency/Publication/ACER%20Market%20Monitoring%20Report%202019%20-%20Gas%20Wholesale%20Markets%20Volume.pdf

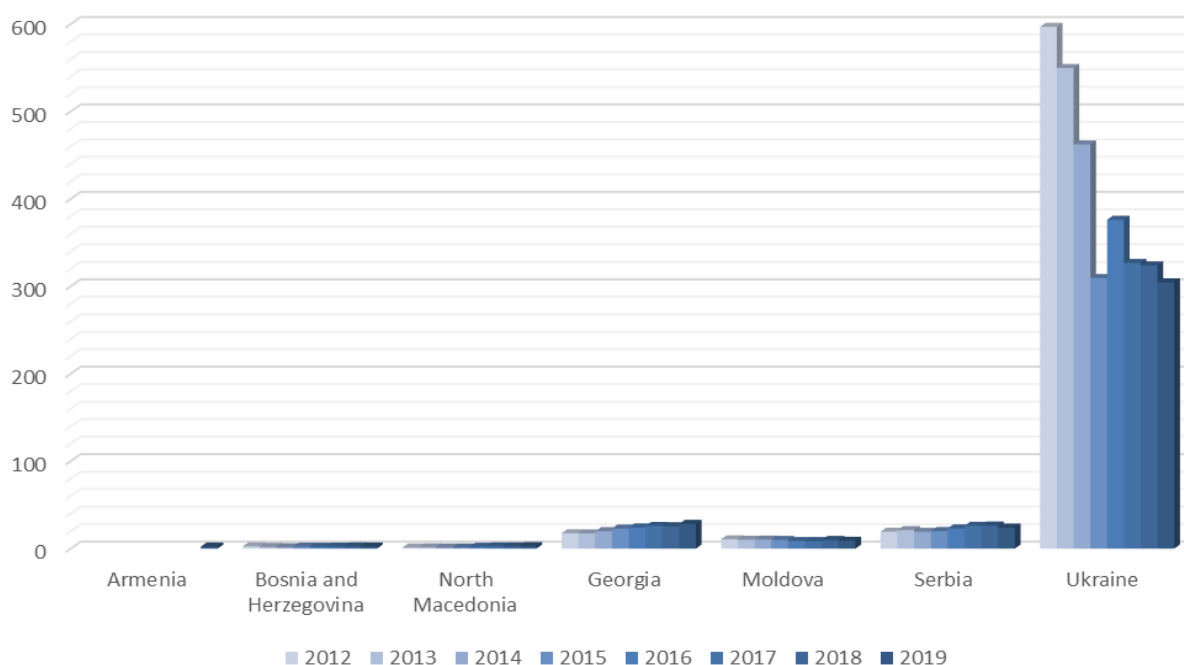
ANALYSIS

1. Wholesale gas market characteristics and prices

The gross inland gas consumption⁴ in the Contracting Parties changed in different ways from 2012 to 2019 in the individual markets: while in Ukraine, Moldova and Bosnia and Herzegovina consumption on average decreased, it increased in the other Contracting Parties. The substantial decline in Ukrainian’s gas consumption- almost 50%, started as of 2015, due to lower operation of industries in the occupied parts of the country, increased gas prices and intentional lowering of import dependence. Growth rates on a year-to-year basis also follow different patterns and for the years 2018 to 2019 the increase of gas consumption was registered in North Macedonia and Georgia, while other markets saw slight decrease of around 6%. The information on natural gas consumption in Armenia is available for the first time and the observations on trends shall be done in the following editions of the report.

The figures below present the gross inland gas consumption in the period 2012- 2019 – including and excluding Ukraine⁵ – as well as consumption growth rates by country.

Figure 1 Gross inland consumption (in TWh/year)



⁴ Calculated as follows: Gross Inland Consumption = production + imports - exports + storage variations.

⁵ With a view to provide comparability having in mind the size of the Ukrainian gas market compared to those of the other analyzed markets.

Figure 2 Gross inland gas consumption without Ukraine (in TWh/year)

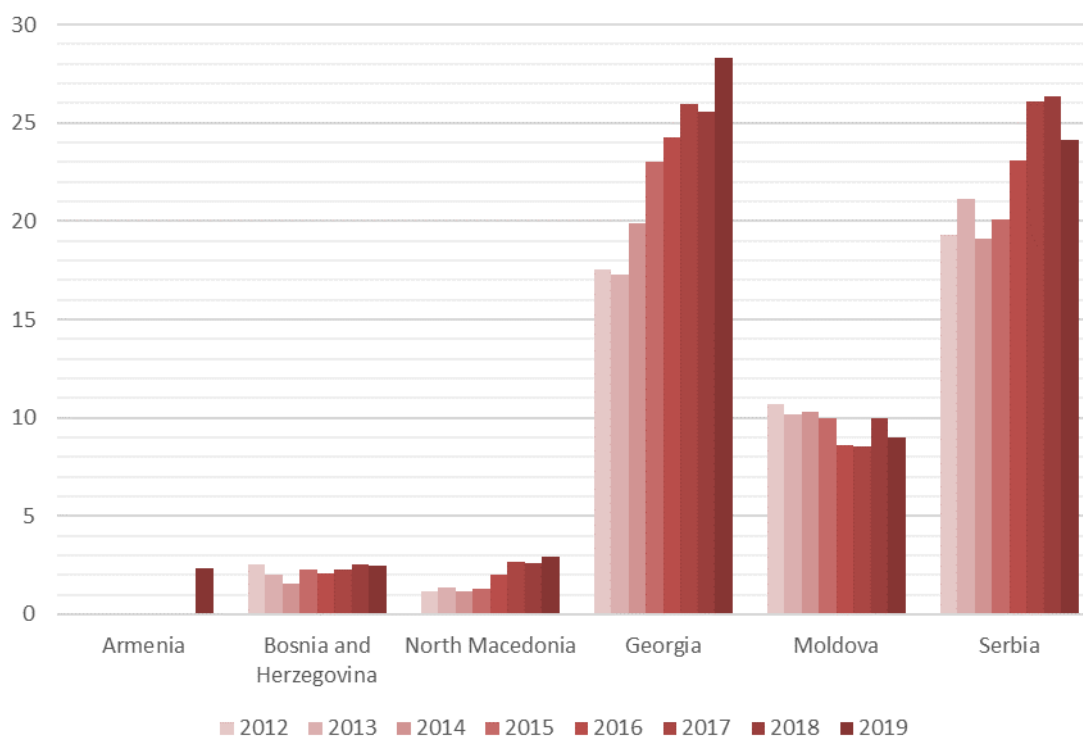


Figure 3 Gas consumption growth rates 2019/2012

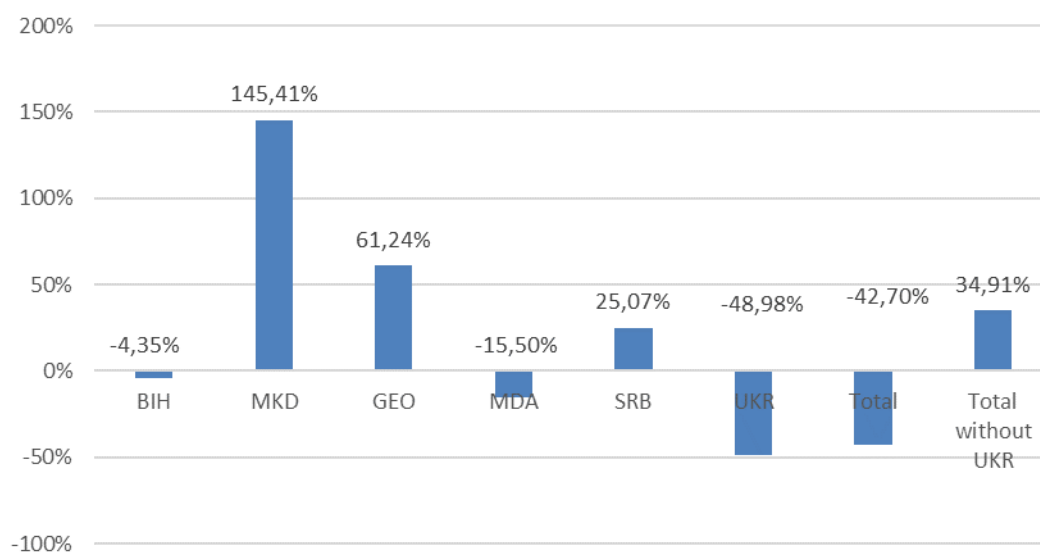
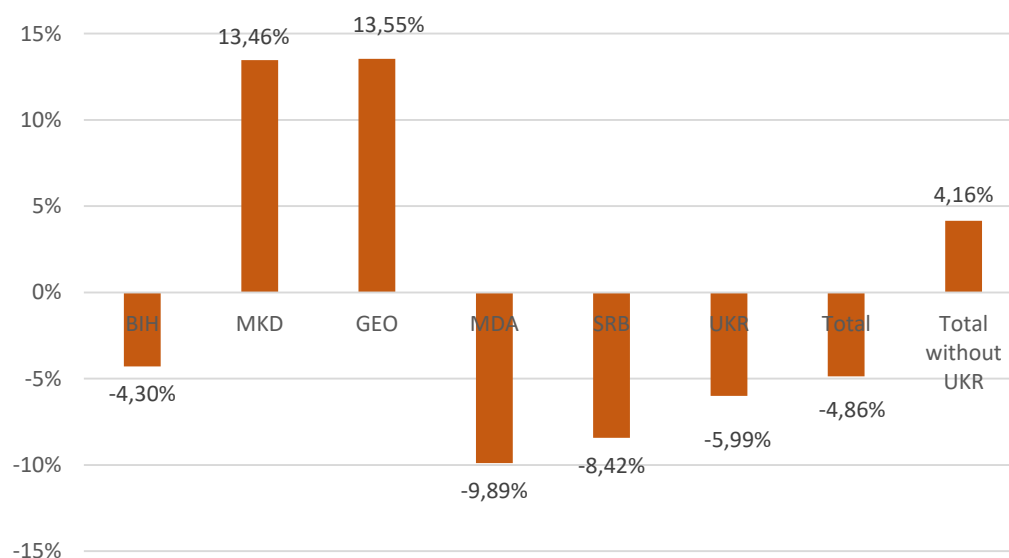


Figure 4 Gas consumption growth rates 2019/2018



Natural gas is mainly imported to the Contracting Parties whereby import dependency from Russian sources continues to prevail. In North Macedonia import from Russian sources represented 100% of the final consumption, in Moldova up to 99% and in Serbia 87%. In 2019, Armenia covered 85% of its demand from Russian sources and about 15% from Iran sources (by the same company “Gazprom Armenia” CJSC and in the framework for gas-electricity exchange program). Georgia relies mostly on imports from Azerbaijan (in 2019 93.5% of gas demand was covered by gas from Azerbaijan) and from Russia (6.3%). The share of import from Russia increased from less than 2% in 2018 to 6.3% in 2019. In Ukraine, 43% of the gas consumed in 2019 depended on import from EU Member States while 57% came from indigenous production.⁶ In turn this means that Ukraine was not depending from Russian imports in 2019 at all. In Turkey 99% of domestic consumption is covered by imports. The numbers of supply sources per Contracting Party/Observer are shown in the table below.

⁶ These shares were calculated without taking into account storage withdrawals in 2019, since the NRA does not have information on the origin of stored gas.

Table 1 Sources of gas supply to the Energy Community Contracting Parties and Observers

| Energy Community Contracting Party/Observer | Number of supply sources |
|---|---|
| Armenia | 2 (Russia, Iran) |
| Georgia | 3 (Georgia, Russia 6% and Azerbaijan 93.6%, whereby there are two sources from Azerbaijan; around 0.4 % of demand was covered from domestic production) |
| Moldova | 3 (import from Russia and Romania 99%, whereby less than 0.5% from Romania; domestic production added up to 0.01%) |
| North Macedonia | 1 (Russia) |
| Serbia | 2 (Serbia 13%, Russia 87%) |
| Turkey | The share of imports according to the top importers in Turkey are: 34% Russia; 21% Azerbaijan; 18% Iran. |
| Ukraine | NA ⁷ (domestic production contributed to coverage of 57% of demand and 43% were import from EU at interconnection points (IPs) with neighboring EU Member States) ⁸ |

For the countries where related information is available, average yearly prices at the borders of the importing countries as well as the average wholesale sell prices for the years 2013 to 2019 are shown in the tables below.

Table 2 Average yearly import price of gas in the Contracting Parties

| Price of gas at the border of the importing country (in EUR/MWh) | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 |
|--|-------|-------|-------|-------|-------|-------|-------|
| Moldova | 29.19 | 29.49 | 23.35 | 21.72 | 18.25 | 19.45 | 20.29 |
| North Macedonia | 41.60 | 40.20 | 27.00 | 17.28 | 20.26 | 25.16 | 23.26 |
| Serbia | NA | NA | 28.21 | NA | NA | NA | NA |
| Ukraine ⁹ | NA | NA | NA | 17.47 | 19.92 | 24.89 | 17.8 |

⁷ The abbreviation "NA" stands for "not available" throughout the report.

⁸ The ultimate sources of natural gas imported to Ukraine on the IPs with neighboring EU Member States cannot be established, while the exporters obtain gas on EU gas hubs.

⁹ These prices include also the entry tariffs to Ukraine.

Table 3 Average yearly gas wholesale sell prices in the Contracting Parties/Observers

| Average gas wholesale sell price in country (in EUR/MWh) | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 |
|--|-------|-------|-------|-------|-------|-------|-------|
| Moldova | 34.65 | 31.09 | 30.34 | 20.14 | 30.09 | 26.68 | 23.76 |
| North Macedonia | 48.9 | 48.6 | 30 | 22.4 | 24.6 | 27.4 | 25.36 |
| Serbia | NA | NA | 32.12 | 22.99 | 24.51 | 28.03 | 28.53 |
| Turkey | NA | NA | NA | NA | NA | NA | 10.87 |
| Ukraine | NA | NA | NA | 15.53 | 18.20 | 20.08 | 17.7 |

Wholesale price regulation is abandoned in all analyzed markets with the exception of Ukraine where prices for gas produced in state owned production companies are regulated. The influence of this price regulation was obvious until 2018, as shown in the tables above - average wholesale sell prices in Ukraine were lower than average import prices. However, as of 2019, the average prices at which state owned production companies sell their gas almost achieved the level of average import prices. This is due to the amendments to the Public Service Obligation (PSO) Act of the Cabinet of Ministers of Ukraine, by which the price for state-owned production was set close to the level of import price.

In 2019, Ukraine produced 19.75 bcm of gas. *Ukrgezvydobuvannya* (UGV), a 100%-owned subsidiary of *Naftogaz*, produced 13.6 bcm of gas representing 69% of Ukraine's total indigenous production. Almost¹⁰ all marketable gas produced by UGV, namely 13.6 bcm, was purchased by *Naftogaz* at a regulated price of 17.10 EUR/MWh and further sold at a regulated price of 18.29 EUR/MWh to cover demand of households, religious organizations and district heating companies,¹¹ i.e. heat and hot water production companies for households and religious organizations' needs. Gas prices and supply procedures for the protected categories (i.e. households; religious organizations; and district heating companies for the purpose of producing heat and hot water for the needs of population and religious organizations) are regulated by the Public Service Obligation (PSO) Act of the Cabinet of Ministers of Ukraine. The remaining 6.15 bcm were produced by private producers. Private producers of gas do not have an obligation to sell gas to *Naftogaz* for PSO reasons - they sell gas on the Ukrainian (non-regulated) market but cannot export it to EU countries due to currently fully booked exit capacities at interconnection points (IPs).¹²

In Serbia, the producer *NIS* was active on the free market at both wholesale and retail level. Quantities sold at retail level in 2019 were consumed by industry consumers.

Gas exchanges do not exist in the analyzed markets, with the exception of Ukraine, where one gas exchange operates, with still low, but from year to year increasing liquidity. Traders and suppliers active on those markets also do not buy gas on any other gas exchanges but all gas is provided via long-term and short-term bilateral supply contracts.¹³ The exact quantities of gas provided via such contracts are usually not available to the regulatory authorities. However, this does not apply for Georgia, whose regulatory authority keeps record of the

¹⁰ Except the gas used for the technological needs of *Ukrgezvydobuvannya* during its production process.

¹¹ *Naftogaz* sells gas to district heating companies as a supplier to final customers. At the same time, it sells gas as a trader to suppliers for the needs of households and religious organizations.

¹² This export restriction was canceled in 2019 when exit tariffs were set at IPs used for entry physical flow. Thus, entry IPs used by importers can be used by exporters as well in the form of backhaul flows.

¹³ Long- term contracts are those with duration of more than 1 year.

quantities supplied under each contract. In Ukraine, the regulatory authority does not collect information on each concluded gas buy/sell contract but monitors the average wholesale prices with relevant volumes of all traders who provided relevant information.

The Ukrainian Energy Exchange (UEEX)¹⁴ initiated natural gas trading in 2017 and, since then, increased the traded volumes almost three times: from 1.4TWh in 2017 to around 4TWh in 2019. This corresponds to 6% of gas available for trade on a free market. The number of active trading participants also tripled during this period, however with still major role of incumbent Naftogaz being the main initiator of trading. The main product traded on UEEX in 2019 was month ahead product. It is expected that UEEX will launch a spot market trade in 2020.

The **number of shippers active at interconnection points** varies substantially among the Contracting Parties/Observers; concrete data is presented in the table below.

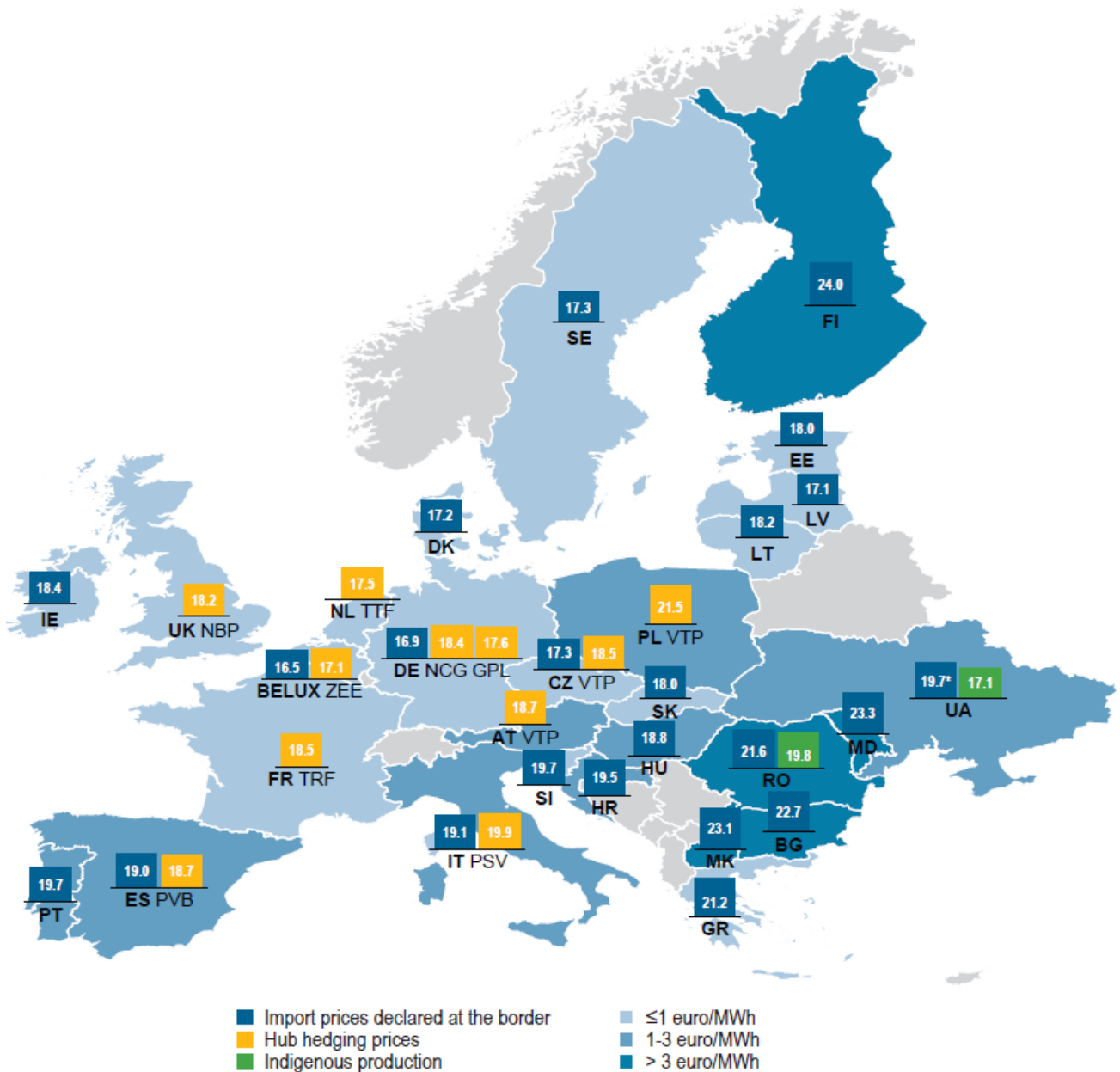
Table 4 Number of shippers at IPs in the Contracting Parties

| Contracting Party/Observer | Number of shippers active at IPs |
|----------------------------|---|
| Armenia | 2 (Georgia-1, Iran-1) |
| Georgia | 5 (Azerbaijan- 1, Azerbaijan SCP- 2, Russia- 2) |
| Moldova | 2 |
| North Macedonia | 2 |
| Serbia | 6 (Hungary- 3, Bosnia and Herzegovina- 3) |
| Ukraine | 76 (Poland- 27, Slovakia- 42, Hungary- 59) |

In general, underdeveloped competitive market conditions – caused by lack of interconnection infrastructure and diversification of supply sources on one side but also by not fully developed legislative and functional preconditions on the other side – contribute to **higher supply sourcing costs in the Energy Community Contracting Parties compared to those of the EU countries**. As shown in the ACER Market Monitoring Report 2019 Gas Wholesale Volume (see Figure 5 below), the average sourcing prices in Moldova and North Macedonia were more than 3 EUR/MWh and in Ukraine around 2 EUR/MWh higher than on the most liquid European hub, whereby these difference for the majority of EU Member States are substantially lower.

¹⁴ <https://www.ueex.com.ua/eng>

Figure 5 2019 Estimated average suppliers' gas sourcing cost by EU MS and EnC CP and delta with TTF hub hedging prices- EUR/MWh¹⁵



Low gas market liquidity and high wholesale prices in the Contracting Parties are certainly indicators for **poor market integration**. Efforts towards better integration of the EU and Energy Community gas markets should contribute to increased liquidity and convergence of prices.

¹⁵ ACER, 2019 MMR Gas Wholesale, September 2020:
https://www.acer.europa.eu/Official_documents/Acts_of_the_Agency/Publication/ACER%20Market%20Monitoring%20Report%202019%20-%20Gas%20Wholesale%20Markets%20Volume.pdf

Losses resulting from limited integration of national gas markets can be illustrated by a simplified example of calculating welfare losses: monthly consumption per household in January and December 2019 is multiplied by the difference between estimated average wholesale sell price in a country and a reference price of Austrian gas hub. This provides a rough estimate of the potential savings that could be achieved if wholesale markets of the Energy Community Contracting Parties would have similar liquidity and competition levels as Austria¹⁶.

Table 5 Estimated wholesale gas level of gross welfare losses per EnC CP average household in January 2019

| Gas hub price in Austria (median of day-ahead close prices at CEGH in January 2019 = 22.26 EUR/MWh) | Average gas consumption per household in January 2019 (MWh) | Average monthly wholesale sell price in January 2019 (EUR/MWh) | Difference between average price and gas hub price in Austria for (EUR/MWh) | Gross welfare loss per average household consumer in EUR/month |
|--|--|---|--|---|
| | 1 | 2 | 3 | 4=3x1 ¹⁷ |
| Moldova | 0.74 | 24.28 | 2.02 | 1.49 |
| North Macedonia | 2.7 | 25.69 | 3.43 | 9.26 |
| Serbia | 2.11 | 27.89 | 5.63 | 11.88 |
| Ukraine¹⁸ | 1.51 | 20.79 | -1.47 | -2.22 |

¹⁶ Other factors such as transmission costs or capacity availability were not taken into account.

¹⁷ Gross welfare loss per average household consumer is calculated by multiplying an average gas consumption per household in a month with difference between an average price and gas hub price in Austria.

¹⁸ Monthly price not available, therefore the Q1 price is used.

Table 6 Estimated wholesale gas level of gross welfare losses per EnC CP average household in December 2018

| Gas hub price in Austria (median of day-ahead close prices at CEGH in December 2019 = 13.56 EUR/MWh) | Average gas consumption per household in December 2019 (in MWh) | Average monthly wholesale sell price in December 2019 (EUR/MWh) | Difference between average price and gas hub price in Austria for (EUR/MWh) | Gross welfare loss per average household consumer in EUR/month |
|--|---|---|---|--|
| | 1 | 2 | 3 | 4=3x1 |
| Moldova | 0.74 | 21.6 | 10.2 | 7.55 |
| North Macedonia | 2.02 | 24.55 | 11 | 22.31 |
| Serbia | 1.5 | 27.08 | 13.52 | 20.28 |
| Ukraine¹⁹ | 1.04 | 16.19 | 2.63 | 2.73 |

These simplified exercises shows that **access to liquid gas markets would contribute to the welfare of household customers**, especially in countries where all or most of available gas is imported i.e. Moldova, North Macedonia and Serbia. The situation in Ukraine is different: the production price regulation and the substantial availability of domestic gas in general keep the average household prices at a level lower that it would be in case of higher import dependence and price deregulation.

2. Market dominance

Market concentration is an important indicator for assessing the performance of wholesale markets. Therefore, ACER included the **Herfindahl-Hirschmann Index (HHI)** in the list of market health metrics in its European Gas Target Model,²⁰ setting a threshold of ≤ 2000 above which markets are considered as concentrated. HHI is calculated as sum of squared market shares (in %) of all different upstream companies supplying a market at import level, i.e. sourcing the gas into the country, not by the shares of the companies buying this gas in a country. The exception is Ukraine, for which the upstream concentration could not be calculated, however, according to the NRA, an index referring to a midstream concentration (taking into account the shares of importing and producing companies). The table below summarized HHIs for Contracting Parties.

¹⁹ Monthly price not available, therefore Q4 price is used.

²⁰ <http://www.acer.europa.eu/Events/Presentation-of-ACER-Gas-Target-Model-/Documents/European%20Gas%20Target%20Model%20Review%20and%20Update.pdf>.

Table 7 HHI for wholesale gas markets in the Contracting Parties, calculated for shares in 2019

| Contracting Party | Herfindahl- Hirschmann Index |
|-------------------|------------------------------|
| Georgia | 4,385 |
| Moldova | 10,000 |
| North Macedonia | 10.000 |
| Serbia | 8,042 |
| Ukraine | 4,026 |

While the presented HHI thresholds indicate upstream dominance, other indicators showing dominance on the midstream gas market are the number of companies selling at least 5% of available gas and the market share of the three biggest companies. Relevant results for the assessed markets are shown hereinafter.

Table 8 Dominance of wholesale supply companies in gas markets of the Contracting Parties and Observers in 2019

| Contracting Party/Observer | Number of companies selling at least 5% of available gas ²¹ | Shares of 3 biggest companies in the market (in %) | | |
|----------------------------|--|--|-------|------|
| | | 1 | 2 | 3 |
| Armenia | 1 | 100 | | |
| Georgia | 5 | 37 | 31 | 25 |
| Moldova | 1 | 98.4 | | |
| North Macedonia | 3 | 62.4 | 28.35 | 23 |
| Serbia | 2 | 87.21 | 12.79 | |
| Ukraine | 2 | 62.76 | 5.06 | 4.14 |
| Turkey | 1 | 81.41 | 4.08 | 2.3 |

²¹ Available gas calculated as: available gas = gross inland consumption (production + net imports + storage variations).

Both market concentration indicators presented above show that the **gas markets of the Contracting Parties and Observers are highly concentrated**, i.e. only very limited number of companies with substantial market shares are sourcing gas into the analyzed national markets. In North Macedonia, two big gas consumers buy gas directly at the border, therefore the concentration of the main wholesaler on the market is lower.

3. Transmission tariffs and network access regimes

Tariffs for transmission network access as well as the methodologies used for their calculation significantly influence gas trade, liquidity and competition. Furthermore, they also affect wholesale market integration. Directive 2009/73²² and Regulation 715/2009²³ and therefore require that network tariffs are transparent and non-discriminatory, providing incentives for investments and interoperability of networks as well as created so not to restrict market liquidity or trade across borders of different transmission systems. The European Regulation 2017/460 establishing a network code on harmonised transmission tariff structures for gas ('TAR NC'), established with a view to contribute to market integration, enhance security of supply and promote the interconnection between gas networks, was adopted for the Energy Community Contracting Parties in November 2018, with an implementation deadline of 28th February 2020.²⁴

In 2019, transmission tariffs were calculated separately for entry- exit points in Serbia and Ukraine only. In the other Contracting Parties, post- stamp methodologies were implemented.²⁵

The simulation of the costs incurred when flowing one GWh/day/year of gas is provided regularly in the ACER Market Monitoring Reports, for which the regulatory authorities of the Contracting Parties sent input already for three years. The results of the 2019 simulation are presented in the table below.

²² Directive 2009/73/EC of 13 July 2009 concerning common rules for the internal market in natural gas and repealing Directive 2003/55/EC, incorporated and adapted by Ministerial Council Decision 2011/02/MC-EnC of 6 October 2011 (https://www.energy-community.org/dam/jcr:004b3ca7-fa52-4633-875e-8ac1b2cea021/Directive_2009_73_GAS.pdf).

²³ Regulation (EC) 715/2009 of 13 July 2009 on conditions for access to the natural gas transmission networks and repealing Regulation (EC) 1775/2005, incorporated and adapted by Ministerial Council Decision 2011/02/MC-EnC of 6 October 2011 (https://www.energy-community.org/dam/jcr:d0f7d046-57cb-479a-a39a-9bce06065155/Regulation_715_2009_GAS.pdf).

²⁴ Some of the implementation deadlines for certain provisions of the Network Code are set differently; for more information see: Decision of the Permanent High Level Group 2018/07/PHLG-EnC adopting the TAR NC: https://www.energy-community.org/dam/jcr:fd41a351-b04c-41a7-b7a5-89da4171aa17/Regulation_2017_460_TAR_NC.pdf.

²⁵ More details may be found in the 2018 ECRB paper on transmission tariffs developed in cooperation with ACER under the umbrella of the ACER Gas Regional Initiative South South East, cf: https://www.energy-community.org/dam/jcr:ceb1de6c-45c3-48d3-8f9a-5ad3b853d1a5/ECRB012018_Gas.pdf.

Table 9 Cost of flowing one GWh/day of gas in 2019 (in EUR/GWh/day)

| Interconnection point | Border and direction | Flow direction (TSO view) | TSO | Charge (EUR/GWh/day) | 2018/2019 change (in %) |
|--------------------------------|----------------------|---------------------------|--------------------|----------------------|-------------------------|
| Horgos | HU-RS | entry | <i>Srbijagas</i> | 513 | +0.37 |
| Zvornik | RS-BA | exit | <i>Srbijagas</i> | 1,665 | +0.26 |
| Deve Bair | BG-MK | entry | <i>GAMA</i> | 2,184 | -12,18 |
| Bregdaroc | HU-UA | entry | <i>Ukrtransgaz</i> | 529 | -46,83 |
| Budintse | SK-UA | entry | <i>Ukrtransgaz</i> | 529 | -46,83 |
| Hermanovychi | PL-UA | entry | <i>Ukrtransgaz</i> | 529 | -46,83 |
| all IPs with Belorussia | BY-UA | entry | <i>Ukrtransgaz</i> | 529 | -46,83 |
| all IPs with Russia | RU-UA | entry | <i>Ukrtransgaz</i> | 529 | -46,83 |
| Uzhgorod | UA-SK | exit | <i>Ukrtransgaz</i> | 1,475 | -43,60 |
| Drozdovychy | UA-PL | exit | <i>Ukrtransgaz</i> | 1,049 | -48,85 |
| Beregove | UA-HU | exit | <i>Ukrtransgaz</i> | 1,417 | -42,74 |
| Tekove | UA-RO | exit | <i>Ukrtransgaz</i> | 1,350 | -41,59 |
| Orlivka | UA-RO | exit | <i>Ukrtransgaz</i> | 1,159 | -37,17 |
| Oleksiivka | UA-MD | exit | <i>Ukrtransgaz</i> | 1,454 | -43,28 |
| Grebenyky (SHKRI) | UA-MD | exit | <i>Ukrtransgaz</i> | 1,100 | -35,31 |

| Interconnection point | Border and direction | Flow direction (TSO view) | TSO | Charge (EUR/GWh/day) | 2018/2019 change (in %) |
|-------------------------|----------------------|---------------------------|--|----------------------|-------------------------|
| Grebenyky (ATI) | UA-MD | exit | <i>Ukrtransgaz</i> | 952 | -28,63 |
| Ananyiv | UA-MD | exit | <i>Ukrtransgaz</i> | 952 | -28,63 |
| Ustylug | PL-UA | entry | <i>Ukrtransgaz</i> | 529 | -46,83 |
| Ustylug | UA-PL | exit | <i>Ukrtransgaz</i> | 1,049 | -48,85 |
| Moldova- within country | | exit | <i>Moldovatransgaz</i> | 149 | +3,71 |
| Moldova- transit | | point-to-point | <i>Moldovatransgaz</i> | 155 | -0,24 |
| Georgia- within country | | exit | <i>Georgian Gas Transportation Company</i> | 543 | -5,24 |

Source: NRAs, recalculation based on ACER methodology

It has to be noted that transmission tariffs calculated for entries to the Ukrainian system from Russia and Belorussia, as well as exits to Poland, Slovakia, Hungary, Moldova and Romania, used for transit of Russian gas to EU countries and the Contracting Parties were not applied in practice in 2019, due to existing transit contracts. These tariffs were substantially lowered for 2019, in comparison to the previous year.

Gas transmission tariffs in 2019 **differ a lot** among the Contracting Parties, starting from only 149 EUR/GWh/day for Moldova to 2,184 EUR/GWh/day for North Macedonia.²⁶ In the majority of cases, the tariffs were similar to those in the EU Member States.²⁷ Without detailed investigation of costs included in the allowed revenue or transmission tariff structures, it is not possible to explain precisely the reasons for such differences. More clarity will certainly be provided once the TAR NC is fully implemented in the Contracting Parties and ECRB will have prepared the monitoring reports required by the Network Code.²⁸ Taking into consideration the current level of infrastructure development and diversification of sources in the Contracting Parties, it may be assumed that recovery of actual costs incurred played a more important role in tariff setting than the target of a level playing field for wholesale market development. This, of course, cannot be stated for Ukraine.

²⁶ The tariffs calculated for UA transit- related entries and exits, were not applied in practice.

²⁷ See ACER, MMR 2019 Gas Wholesale Market Volume, Annex I, figure iv.

²⁸ I.e. a report on the methodologies and parameters used to determine the allowed or target revenue of transmission system operators by 1st October 2021, and a report on the application of reference price methodologies by end of August 2022.

Beside capacity tariffication, transparent and non-discriminatory **capacity allocation** harmonized on interconnection points between TSOs is another important prerequisite for having liquid and competitive wholesale gas markets. Therefore Regulation (EU) 2017/459 ('CAM NC')²⁹ requires harmonized capacity allocation procedures at interconnection points, via market-based auctions at centralized booking platforms. The deadline for implementing CAM NC in the Contracting Parties was set to end February 2020, whereby the first annual yearly auctions were supposed to be organized as of July 2020 in line with the ENTSOG auction calendar. In Ukraine, the transmission system operator, certified as of 1st January 2020, indeed started organizing auctions of firm and interruptible entry capacity at interconnection points with neighboring EU Member States in July 2020.³⁰

In this context attention has to be drawn to the **legal shortcoming** of binding applicability of the CAM NC on interconnection points between Contracting Parties and EU Member States. In legal terms, the CAM NC is only applicable on interconnection points between EU Member States on the one hand,³¹ and on interconnection points between Contracting Parties on the other hand. According to both the EU and the Energy Community version of the CAM NC the code may also be applied on interconnection points with third countries, i.e. a Contracting Party from an EU Member State perspective and *vice versa* – subject to a related decision of the relevant national energy regulator. By signing a related declaration, the regulators of Albania, Bulgaria, Greece, Hungary, Moldova, Poland, Romania and Ukraine expressed commitment to introduce such a possibility. Still, a stable and reliable common and reciprocal legal basis for harmonisation of capacity allocation across Europe remains the ultimate target that would bring benefits for gas trade and market development.

In the Contracting Parties there are two **dedicated transit pipelines** with particular conditions. These are the Ananiev – Tiraspol – Izmail (ATI) Pipeline in Moldova and a section of the South Caucasus Pipeline (or Baku - Tbilisi –Erzurum pipeline) in Georgia, which is a transit pipeline that is operated by *BP*, not the Georgian TSO. Through one interconnection point, the South Caucasus Pipeline is linked to the Georgian transmission system.

Long- term contracts for gas transit exist in Ukraine and Moldova and they expired at the end of 2019.³² Gas is also transited via the Serbian transmission system to Bosnia and Herzegovina - part of the quantities delivered to Bosnia and Herzegovina are subject to tariffication rules under the Third Energy Package, the remaining quantities are still delivered under the long- term contract.

According to applicable national legislation (i.e. national transmission network codes) yearly, quarterly, monthly and daily **capacity products** may be offered by the transmission system operators of the Contracting Parties. In practice, however, transmission system operators allocate almost exclusively yearly capacities, with exception of Serbia and Ukraine. In Ukraine daily capacity was sold in 2019 and in Serbia both monthly and daily. In more detail:

In Serbia, the network code envisages allocation of yearly, monthly and daily capacities. The principles for capacity allocation are as follows:

²⁹ Commission Regulation (EU) 2017/459 of 16 March 2017 establishing a network code on capacity allocation mechanisms in gas transmission systems and repealing Regulation (EU) No 984/2013 was incorporated into the Energy Community *acquis communautaire* by Decision 2018/06PHLG-EnC of the Permanent High Level Group (https://www.energy-community.org/dam/jcr:0898e7e5-b38a-48fc-966f-b60a856c99e5/Regulation_2017_459_CAM.pdf).

³⁰ <https://tsoua.com/en/business-services/order-and-payment/capacity-allocation-at-interconnection-points/auction-results>

³¹ EU version of the CAM NC.

³² A new transit contract between Ukraine and Russia has been concluded end of 2019 for a period of five years and between Moldova and Russia for one year.

- In case the sum of all acquired capacities for entry/exit for the respective capacity product is less or equal to the capacity to be allocated, TSO accepts all requests and allocates requested capacities;
- In case the sum of all acquired capacities for entry/exit for the respective capacity product is higher than the capacity to be allocated, TSO allocates capacities proportionally to the capacities requested

Allocation of capacities according to the applicable network code was not performed in 2019 in Serbia. Furthermore, the interconnection point on the border with Hungary (Horgos), through which all gas is imported to Serbia, was excluded from capacity offers in 2017, 2018 and 2019, therefore foreclosing gas wholesale market in the country.³³

In Ukraine, capacity is allocated according to the “first come first serve” principle. Only, in case of a lack of capacity, capacity auctions should be held. In the reporting period, no auction has been organized. Capacity is offered on yearly, quarterly, monthly and daily basis. Since the price of all kind of mentioned capacity products is the same, only daily products were bought in 2019, 2018 and 2017. It is worth taking into account that capacity allocation is performed only at IPs which are used for import flow. The IP capacity used for transit flow is booked via long term contracts. In 2019, there were 76 network users at Ukrainian IPs used for import - Hermanovychi (PL-UA), Budintse (SK-UA) and Beregdaroc (HU-UA), 11 more than in the previous year. Most of these users (59) were active at Beregdaroc. The only import IP for which firm capacity might be booked to a certain extent is Budintse, on Hermanovychi and Beregdaroc only interruptible capacity could be reserved.

4. Balancing of transmission networks

Market based balancing rules, which impose balancing responsibilities on network users, foster liquidity and contribute to more competition in the gas markets. Their implementation is required by Regulation 715/2009 but also further specified by Regulation (EU) 312/2014 establishing a network code on gas balancing of transmission networks ('BAL NC'). The BAL NC was adopted for the Contracting Parties in December 2019, setting an implementation deadline of December 2020.³⁴

In April 2019, ECRB published a report on Balancing of Gas Transmission Networks in the Energy Community, providing an overview of the balancing rules currently implemented in the Contracting Parties as well as identifying the gaps between the current status and the requirements of the BAL NC.³⁵ Some of the conclusions of the report are summarized below:

- there is a lack of practice of regulating balancing processes in gas transmission systems;
- neither trading nor balancing platforms exist in the Contracting Parties. Transmission system operators use balancing services or, more often, gas supply contract, as balancing tools.
- a daily balancing regime cannot be reasonably implemented without providing the transmission system operator with data on non-daily metered off-takes and giving the system users information on their imbalance status in a timely and user-friendly manner. Meeting these requirements via the establishment

³³ The lack of third party access at the interconnection point Horgos is subject to an infringement case.

³⁴ Decision [2019/01/PHLG-EnC](#).

³⁵ For more details see: https://www.energy-community.org/dam/jcr:bfab1afe-e8ba-4787-942a-2d535de8f560/ECRB_Balancing_report_gas_092019%20.pdf.

of a special IT platform has relevant financial impact that Contracting Parties may be reluctant to address where gas market liquidity is low and/or gas infrastructure is not in place. The same argument may be a barrier for the establishment of trading platforms.³⁶

- the implementation of interim measures shall be considered at least in the first stage of BAL NC implementation.
- the responsibility of regulators to pro-actively design their gas markets and make use of their enforcement powers to foster liquidity, transparency and ensure compliance with the legislative and regulatory regime has to be highlighted.

In 2020, the Ukrainian NRA, transmission system operator, Energy Community Secretariat and Ukrainian Energy Exchange signed the Memorandum of Understanding on the cooperation regarding development and functioning of a liquid exchange traded short-term natural gas market in Ukraine. Nevertheless, there is currently a big obstacle to develop a commodity exchange, so that the TSO can use it for daily balancing purposes. Namely, the Law of Ukraine “On public procurement” requires the transmission system operator – a state-owned company - to procure any goods/services via a tender procedure, while the BAL NC provides for the right of the transmission system operator to procure gas at a trading/balancing platform to fulfill transmission system operator balancing. Recently a draft Law removing this obstacle has been approved in first reading by the Ukrainian Parliament.

5. Transparency

For open, fair and well- functioning gas wholesale markets, transparency of all natural gas undertakings and of the legal and regulatory frameworks is crucial. ECRB regularly performs surveys of the factual level of compliance with the transparency requirements of Directive (EU) 73/2009 and of Regulation (EU) 715/2009.³⁷

In general, Serbia and Ukraine are the front runners in terms of compliance with the legislation and Annex I of 715/2009 Regulation. However, there is still plenty of room for increasing transparency in practice. Limited progress in this respect has been achieved in majority of the Contracting Parties during the last year.

³⁶ In Ukraine this problem was solved and since March 2019 the TSO has been providing system users with their imbalance status on rolling basis via special IT platform. That was the start of daily balancing mechanism implementation in Ukraine.

³⁷ The latest edition may be found here: https://www.energy-community.org/dam/jcr:e7b11b89-2ef0-4cf5-bd8a-f68738f54ccf/ECRB_gas_transparency_122019.pdf.

6. Summary and conclusions

Gas demand in the Energy Community Contracting Parties had different dynamics in the period 2012 to 2019: while it decreased on average in Ukraine, Moldova and Bosnia and Herzegovina, in Ukraine even by almost 50%, in the other Contracting Parties demand increased. On a year-to-year basis, from 2018 to 2019, an increase of gas consumption was registered in North Macedonia and Georgia, while other markets saw slight decrease of around 6%.

Natural gas is mainly imported. In North Macedonia and Armenia import from Russian sources represented 100% of the final consumption, in Moldova up to 99% and in Serbia 87%. Georgia relies mostly on imports from Azerbaijan (93.5% of gas demand was covered by gas from Azerbaijan) and a little more than 6% from Russia. In Ukraine 43% of the gas consumed in 2019 depended on import from EU Member States while 57% came from indigenous production. In Turkey 99% of domestic consumption is covered by imports.

Wholesale price regulation is abandoned in all Contracting Parties with the exception of Ukraine where prices for gas produced in state owned production companies are regulated. The influence of this price regulation is obvious for the cases where average wholesale sell prices are lower than average import prices, as was the case in Ukraine up to 2019. However, in 2019, the average prices at which the state- owned production companies sell gas almost achieved the level of average import prices. Low gas market liquidity and high wholesale prices in most of the Contracting Parties are indicators of **poor market integration**. Efforts towards better integration of the EU and Energy Community gas markets should contribute to increased liquidity and convergence of prices.

The simplified exercise presented in this report showed that **access to liquid gas markets would contribute to the welfare of household customers**, especially in countries where all or most of available gas is imported, i.e. Moldova, North Macedonia and Serbia.

Gas markets of the Contracting Parties are **highly concentrated**. Only very limited number of companies with substantial market shares are sourcing gas to the analyzed national markets.

In 2019, **transmission tariffs** were calculated separately for entry- exit points in Serbia and Ukraine only. In the other Contracting Parties, post- stamp methodologies were implemented. Gas transmission tariffs in 2019 differ a lot among the Contracting Parties, starting from only 54 EUR/GWh/day in Moldova to 797 EUR/GWh/day for entry to North Macedonia from Bulgaria. In the majority of cases, the tariffs were also higher than in the EU Member States. Without detailed investigation of costs included in the allowed revenue or transmission tariff structures, it is not possible to explain precisely the reasons for such differences. More clarity will certainly be provided once the TAR NC is fully implemented in the Contracting Parties. Taking into consideration the current level of infrastructure development and diversification of sources in the Contracting Parties, it may be assumed that recovery of actual costs incurred had more important role in tariff setting than provision of level playing field for wholesale market development.

In the Contracting Parties there are two **dedicated transit pipelines** with particular conditions. These are the Ananiev – Tiraspol – Izmail (ATI) Pipeline in Moldova and a section of the South Caucasus Pipeline (or Baku - Tbilisi –Erzurum pipeline) in Georgia. **Long- term contracts for gas transit** exist in Ukraine and Moldova. Gas is also transited via the Serbian transmission system to Bosnia and Herzegovina, however partly under a regulatory regime.

According to applicable national legislation (transmission network codes), yearly, quarterly, monthly and daily capacity products may be offered by the transmission system operators of the Contracting Parties. In practice, however, transmission system operators allocate almost exclusively yearly capacity, with exception of Ukraine, where only daily capacity was sold in 2019 and Serbia where monthly and daily capacities were sold in 2019. Forthcoming implementation of the CAM NC is expected to bring harmonization and transparency of capacity allocation mechanisms in the Contracting Parties, therefore contributing to better functioning of gas wholesale markets in the region.

In terms of **transparency** of processes related to gas transmission, the Contracting Parties show progress over the several last years, as show by the dedicated ECRB reports in this field. However, there is still plenty of room for increasing transparency in practice.

Finally, ECRB repeats its constant plea for a stable and reliable common and reciprocal legal basis for the application of Gas Network Codes at the interconnection points between Contracting Parties and Member States for the benefit of gas trade, market integration and market development.