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Study on Harmonising International Roaming Pricing and Reducing Roaming Tariffs among the Eastern Partnership Countries

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This report has been prepared by the KANTOR Management Consultants - led Consortium. The findings, conclusions and interpretations expressed in this document are those of the Consortium alone and should in no way be taken to reflect the policies or opinions of the European Commission.

Preface

This Study on *Harmonising International Roaming Pricing and Reducing Roaming Tariffs among the Eastern Partnership Countries* is part of the Project *Short term high quality studies to support activities under the Eastern Partnership – HiQSTEP, EuropeAid/132574/C/SER/Multi*, carried out by an international consortium under the leadership of Kantor Management Consultants

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Abbreviations and Acronyms

ANRCETI	National Regulatory Agency for Electronic Communications and Information Technology (Moldova)
BEREC	Body of European Regulators for Electronic Communications
CIS	Commonwealth of Independent States
DCFTA	Deep Comprehensive Free Trade Area
EAEU	Eurasian Economic Union
EaP	Eastern Partnership
EBITDA	Earnings before interests, taxes, deprivation and amortization
EEA	European Economic Area
EFTA	European Free Trade Area
EU	European Union
EUROTARIFFS	mobile tariffs applicable from 2007 to 2017 that complied with regulated price caps and regulated billing units. The term is no longer applicable from 2017, due to introduction of RLAH
FTA	Free Trade Agreement
GATS	General Agreement on Trade in Services
GNCC	Georgian National Communication Commission
HiQSTEP	High Quality Studies for the Eastern Partnership
ICT	Information and Communication Technologies
ITU	International Telecommunication Union
KPI	Key Performance Indicators
LRIC	Long-Run Incremental Cost
MFN	Most Favoured Nation
MoU	Memorandum of Understanding
MVNO	Mobile Virtual Network Operator
NCCR	Ukraine's Regulator until 2010
NCCIR	Ukraine's Regulator from 2011 onwards
NRA	National Regulatory Authority
OAC	Operational and Analytical Centre (Belarus)
PSRC	Public Services Regulatory Commission of Armenia
RATEL	Republic Agency for Electronic Communications (Serbia)
Regulator	Unless otherwise stated, the term implies an independent regulatory authority or a Ministry in charge of regulating the telecommunications market
RLAH	'Roam Like At Home' mobile tariffs that do not levy any surcharge in addition to the domestic price paid by the roaming customers.
RRA	Regional Roaming Agreement
SMP	Significant Market Power
SMS	Short Message Service
REWG	Roaming Expert Working Group
URDN	United Republican Data Network (Belarus)
USSD	Unstructured Supplementary Service Data
WD	Working Day
WTO	World Trade Organisation

Country codes

AM	Armenia
AZ	Azerbaijan
BY	Belarus
GE	Georgia
MD	Moldova
UA	Ukraine

1 INTRODUCTION

This Study relates to the agreed objectives of the Eastern Partnership Platform 2 "Economic Integration and Convergence with EU Policies" and is meant to contribute to the objective of reducing mobile telephone roaming charges in the six Eastern Partnership Countries (EaP) of Armenia, Azerbaijan, Belarus, Georgia, Moldova and Ukraine, under a joint EaP-European Union initiative. Currently, high regional roaming tariffs hamper the Eastern Partner Countries' effort to create an international roaming space and to better enjoy the consequent benefits of increased connectivity.

High roaming charges can hinder the effort of EaP Countries to develop knowledge-based economies. Conversely, these can profit from the achievement of a common international EaP roaming space of about seventy-two million consumers and from the creation of an EaP roaming market. Lower and competitive retail roaming charges have proven highly effective in developing the EU internal roaming market by boosting sales and increasing consumer roaming usage.

The liberalisation of the EU roaming market was initiated in 2002 with the regulatory framework for electronic communications. It was then continued through the first 2007 Regulation on roaming and the subsequent regulations adopted until the ban on roaming charges for roaming services of June 2017. Based on the EU experience, this Study describes the tools, regulatory analyses and tariff comparisons adopted by EU institutions and regulators that could be adapted for the EaP roaming market.

This Study presents recommendations for harmonising roaming pricing and tariffs among the EaP Countries, proposes guidelines on how to implement a harmonised approach to wholesale and retail roaming prices and assesses the expected impact of the reduction of tariffs on the retail roaming market in each EaP Country. It also assesses the feasibility and market impact of the implementation of a Regional Roaming Agreement (RRA) among the EaP Countries and analyses its potential implications for reducing the roaming charges across the Partner Countries. Finally, this Study presents a suggested regulatory approach.

The results of the Study support the work already carried out by the Roaming Expert Working Group (REWG), which is aimed at fostering the creation of a common space for international roaming among the EaP Countries through the reduction of the differences between domestic and roaming prices – thus protecting consumers' rights and interests. The REWG operates within the EU4Digital networks of correspondents from the Partner Countries and the EU Member States who are working on jointly agreed priority topics. The EU4Digital networks serve as platforms for sharing best practices and experiences among partners and with the EU, thus promoting synergies and developing joint projects.

This Study was undertaken in the context of the EaP Ministerial level meeting on the Digital Community, held in Brussels with the EU Commission and the Slovak Presidency of the EU Council on October 18, 2016. In that meeting, the participants expressed their support for the work done by the network of regulators for electronic communications and by its expert working groups on the issues of benchmarking, spectrum and roaming. In particular, it was agreed to start discussions on the issue of roaming in the context of the Digital Community.

It is expected that the results of this Study will be used in the decision-making process carried out by the relevant EaP Ministers on a possible Regional Roaming Agreement.

2 EXECUTIVE SUMMARY

Due to its cross-border nature, international roaming remains outside of the control of national Regulators. In the EU, regulatory interventions of the EU Commission were necessary to reduce international roaming tariffs. To reach similar results in the EaP Countries in the absence of a supra-national authority, EaP decision-makers will need to adhere to a detailed and prescriptive Regional Roaming Agreement and appoint the REWG to coordinate their roaming activities.

This Study is meant to contribute to the objective of reducing mobile telephone roaming charges in the six Eastern Partnership Countries (EaP) under a joint EaP-European Union initiative. Today, high roaming charges within the EaP area can hamper the efforts of EaP Countries to develop knowledge-based economies. In contrast, lowering the EU area retail roaming charges and stimulating competition in this sector helped develop the EU internal roaming market by boosting consumer roaming usage, thus increasing sales and facilitating personal and business exchanges.

In this Study, tools, regulatory analyses and tariff comparisons adopted by the EU are described that could be adapted to the EaP roaming market. The results of the Study support the work already carried out by the Roaming Expert Working Group (REWG), which aims to foster the creation of a common space for international roaming among the EaP countries through the reduction of the differences between domestic and roaming prices. Thus, it is expected that the results of the Study may be used by the relevant EaP Ministers in view of a possible Regional Roaming Agreement (RRA).

The Study Team, composed of a Study Team Leader, a Senior Expert and six National Experts, collected the publicly available relevant information and sent questionnaires to the national Regulators of the EaP countries to retrieve data. In their turn, the Regulators collected data from the local operators and provided most of the regulatory information. The Study has been characterized by a shared, transparent and inclusive consultative process with the EaP representatives in the REWG. However, not all the data requested was made available in every EaP country, thereby making it necessary to base part of the final Study results on extrapolation.

The analysis of the EaP Countries' institutional frameworks and the assessment of their current roaming policies show that in order to give their national Regulators the power to impose a reduction of roaming tariffs and to monitor the evolution of the roaming market, the EaP Countries will need to modify their domestic telecommunications regulatory frameworks. Except for Azerbaijan and Belarus, at the present time the EaP Regulators may intervene only in the framework of the regulation of Significant Market Power (SMP) conditions. Based on the experience of the European Union, this limitation will have to be removed in order to give the EaP Regulators the power to lower international roaming tariffs within the EaP region.

Roaming services are not covered in the DCFTAs signed between EU and Georgia, Moldova and Ukraine, nor in any of the WTO or FTA agreements signed by the EaP Countries. Therefore, a Regional Roaming Agreement would not contravene any international trade commitment of the EaP Countries.

The Study addresses the significant issue of Capacity Building as a tool to reach the overall objective of the reduction of roaming charges in the EaP Countries. Based on the comparative evaluation of

the structure and functions of the personnel employed in the management of roaming by two EU Regulatory departments for which data was obtained, it is estimated that each regulatory department in the EaP countries would need to set up a multi-task team composed of lawyers, economists and engineers to address the roaming tasks from different angles, with a total workforce equivalent to 1.7 persons per year dedicated to roaming. The Study Team also recommends implementing specialized training programs on telecommunications and on roaming, adapted to the specific requirements of each country.

Based on the assessment of the regional data provided by national operators or available in public databases, in 2016 the EaP Countries exchanged nearly 13 million travellers¹, or 17% of their total population of nearly 72 million. Currently, in each EaP mobile service market there are three main telecommunications providers two of them being the market leaders as a result of continued consolidations, mergers and acquisitions. Against this background, the ownership structure could influence wholesale market fees if operators of different EaP Countries offered each other more favourable prices, thereby altering fair market conditions. For each EaP market, the Study evaluated the roaming activity (voice, SMS and data services) and benchmarked it against local services, showing that the tariffs charged for local services were entirely dwarfed by those for roaming, albeit with the exact price differences varying cross-nationally in absolute and relative terms. The Study also found that for all countries and types of services the volume of roaming services is very marginal in comparison with local services. The Study shows that outgoing voice prices range from 39.2 to 87 EUR/cents per minute, in contrast with local prices of typically less than 1 EUR/cent per minute, while roaming prices are from 80 to 200 times higher than corresponding local prices.

The main reason for high roaming prices are high wholesale costs, which also factor in high international mobile interconnect rates. As a consequence, both retail roaming tariffs and voice wholesale costs which include international mobile interconnect costs should be regulated.

The Study gauges the potential impact of a reduction in roaming charges evaluating that in terms of operators' revenues, roaming constitutes a small portion of not more than 4.4% of the total revenues from telecommunications services. The roaming revenues from within the EaP area constitutes no more than 12% of this 4.4%. Thus, any reduction in prices caused by the RRA would impact the operators' revenue only marginally with a minor effect on their financials.

The analysis of the ratios between local and roaming prices demonstrate that even at a high level of wholesale tariffs the substantial margins enjoyed by the operators hold back the expansion of the EaP roaming market, thereby preventing citizens from accessing abroad the same level of services that they enjoy at home. Instead in the EEA, the reduction of roaming prices imposed by EU Regulations, had the effect of substantially increasing the demand for roaming, thereby showing that the expansion of roaming services is highly valuable in terms of fostering benefits on the economy as a whole.

The comparison of best practices in the EU with those in the EaP Countries leads to propose that the REWG serve as a structure with relevant competencies in order to analyse the market and the regulations in the EaP Countries and to provide advice and proposals to national policymakers on roaming policies. This would allow the EaP Countries to adopt national measures which would be consistent throughout the EaP.

¹ This number represents the number of visits from one EaP country to another

The Study also highlighted that the success in executing the RRA in the Western Balkans was largely due to the political will of the relevant Ministries and on a well-staged, coordinated approach by the Regulators, who implemented the RRA within the timeframe common for all by imposing on the mobile operators a reduction of roaming tariffs. It is also noteworthy that while all Western Balkans countries, except Bosnia and Herzegovina, needed some amendments to their primary laws to enable their Regulators to implement the RRA prices, this did not prevent the parties to the RRA to execute the agreement even before the application of the new laws.

The Study provides a summary and a brief explanation of the EU roaming Regulations and of the mechanism through which they yielded new pricing terms for the end customers. The effects of the decrease in roaming charges in the EEA were evaluated and a model mechanism was provided for the EaP Countries. Publicly available data from BEREC for the years 2007- 2015 (for voice and SMS) and 2012 to 2015 (for the data roaming services) were used to build supply and demand models for each of the four services – outgoing voice, incoming voice, SMS, data – covering the average quarterly prices and the cumulated quarterly volumes. The BEREC data were used for the price and volume variables, which were the basis for calculating the revenue and the (hypothetical) consumer savings. Illustrative time series were then produced, to discuss how the variables changed over time and in relation to each other. The results show that the regulatory interventions in the roaming services markets were overall beneficial to the EEA economies. Whereas the consumers' surplus differs from the hypothetical consumers' savings as it includes the effects of the changes in volume related to the changes in price, the loss in revenue is perhaps a better estimate of the effects on the producers' side than the producers' surplus, as the latter is largely based on the assumed cost curve. However, the measurable effects remain: the erosion in market revenue resulted above all in benefits for the data-roaming consumers and, to a lesser extent, in market growth and efficiency improvements. In conclusion, the effect of the price reductions did have a substantial effect on increasing roaming demand, which shows that the service is highly valuable and needed. Moreover, the analysis shows that the economy, measured as total surplus, has seen an increase.

The Study proposes the relevant recommendations on the changes that should be implemented in the legislative, institutional and regulatory structures related to roaming regulation are provided. As there is no central regulator as in the European Union that can impose directly applicable regulations to its Member States, the EaP Countries should sign a Regulatory Roaming Agreement. In this agreement, the EaP Countries would commit to impose concurrently to their mobile operators a reduction of their international roaming tariffs. The RRA will then be ratified by the Parliaments of the EaP Countries. The ratification by the Parliament will have the effect of approving the reduction of roaming tariffs, which will allow the government to impose them. All the countries need to change their Telecommunications laws to allow the Regulator (or, in the case of Azerbaijan the Ministry), to implement the roaming price-caps in the RRA. In Belarus though the Council of Ministers could include roaming tariffs in the list of regulated prices services so that, further to this decision, the Ministry of Antimonopoly and Trade could define the actual wholesale and retail tariffs to be applied, based upon recommendations from the Ministry of Communications. The Study Team also recommends that an independent regulator be created in Azerbaijan and Belarus to take care of the implementation of the RRA.

An analysis of the gap between EU regulation and the EaP countries' roaming policies is also provided. In it, the EU Roaming Regulations are analysed and the main EU obligations are listed that are considered relevant to the EaP Countries' regulatory frameworks. These are then assessed

against a general evaluation of the corresponding EaP obligations, based on the information supplied to the Study Team by the REWG representatives, to show the differences with the EU Regulations. A large number of gaps to be addressed have thus been identified, given the absence of a regulatory framework specifically dedicated to roaming in the EaP Countries.

To promote a wider usage of roaming services within the EaP, based on an analysis of best regulatory practices, the Study suggests three possible alternative pathways for the reduction of roaming charges and the harmonisation of EaP roaming prices, each with its timeline, with different financial consequences for consumers and for operators. The Study Team concludes that in the case of the EaP Countries an intervention based on an amended EU roaming regulation model might be convenient. Furthermore, the Study Team estimates that such a model would also allow the EaP Countries to harmonise with the EU roaming pattern in the future while ensuring that the retail tariffs fully cover all costs and generate a fair profit, thus balancing the interests of both customers and operators.

The Study Team proposes a list of obligations to which the representatives of the EaP Countries should adhere when signing the RRA. In particular, they should commit to: take the decision to impose to all mobile roaming operators in the respective countries the obligation to reduce the price of roaming services (for voice, SMS and data) at wholesale and retail levels within a set deadline; mandate the attribution of specific powers to implement the RRA and the subsequent applicable laws to the Regulators or the relevant Ministries; change the regulatory framework to comply with the decision to reduce roaming tariffs; define the role of the Regulators in preparing the new legislation and give them additional powers, if necessary, or define how the regulatory authority should be established. The Study also proposes to link the agreement to the EU regulatory framework, eventually including its future amendments in order to cope with the progressive adjustment of EU legislation and to define the role of the REWG as a central advisory structure coordinating priorities and joint actions for the implementation of the RRA.

A description of the impediments and possible barriers to the realisation of an RRA was also provided. It was felt that a number of difficulties may arise due to the need of launching simultaneous cross-border regulatory interventions, requiring effective coordination amongst the different responsible stakeholders within each country and at the international level among the six EaP Countries. In addition, it is noted that the parliamentary ratification processes may become protracted, thus preventing the implementation of the RRA, as a result of possible efforts on the part of the mobile operators through lobbying the members of the Parliament or launching campaigns in the press and social media against the adoption of the RRA. Finally, judiciary actions against the application of the RRA, even if approved by the Parliaments of the EaP Countries, are not to be excluded.

As evidenced by the implementation of the RRA in the Western Balkans², the EaP Countries will need political determination in order to successfully coordinate a concurrent and parallel reduction of their roaming tariffs.

By following a similar path and creating an EaP internal market, the EaP Countries could ultimately pave the way for obtaining roaming within the EU at EU prices.

² InterConnect Communications, Market Impact Study on the Regional Roaming Agreement, 2016

3 METHODOLOGICAL APPROACH

3.1 COMPOSITION OF THE STUDY TEAM AND DISTRIBUTION OF THE TASKS

The Study Team was composed: of the Study Team Leader who managed the Study and led the team by proposing the methodology, planning and organising the work, ensuring timeliness, quality, structure and coherence of the deliverables; of the Senior Expert who collected, processed and analysed all the data either directly or through the work of the National Experts; and of six National Experts, who collected the data and information on the legislative, regulatory and institutional framework under the supervision of the Study Team Leader and the Senior Expert.

The information collection consisted of two phases:

- during the desk review, publicly available data on travelling patterns and roaming prices were collected;
- then regulatory and data questionnaires were forwarded to the Regulators and/or Ministries by official letters, to gather country specific information and data, including legislative, regulatory and institutional information. The Regulators collected the relevant data from the operators and made them available to the Study Team in aggregated format.

Section 4.3.1.2 on the analysis of roaming regulations and best practices in the Western Balkans was based on the analysis of the Western Balkans Study by InterConnect Communications³ and on conversations with representatives from the Regional Cooperation Council Secretariat. Other public information was collected from the official websites of the European Union, BEREC and the WTO.

3.2 THE CONSULTATION PROCESS

This Study was characterised by a shared, transparent and inclusive consultative process with the EaP Countries' representatives in the REWG. As reported in Section 4.6, meetings were held in Prague in May and Vilnius in September 2017 between the Study Team and the REWG so that it was possible to consult with the REWG representatives at their plenary sessions and in bilateral meetings. This helped to steer the Study, also in view of the necessity to satisfy the REWG requirements for a smooth reduction of the roaming tariffs in the EaP. An additional meeting was held in Kyiv in July between the Study Team and the REWG Chair, which helped to plan the work and address the issues at hand. In this light, the Study can therefore be seen as a joint exercise between the REWG representatives and the Study Team.

3.3 LIMITATIONS OF THE STUDY

Data collection in Azerbaijan and Moldova remained incomplete and the final results needed extrapolation. Moldovan operators provided to the Regulator their revenue and traffic split by major service categories: local voice, local SMS, local data, international voice, international SMS, roaming voice, roaming SMS, roaming data, which the Regulator aggregated and sent to the Study Team. Based on this information, the Study Team compared overall prices and traffic for local and roaming

³ InterConnect Communications, Market Impact Study on the Regional Roaming Agreement, 2016

services. However, detailed roaming revenue and cost split by EaP countries were not provided, thus, the price and cost analyses by EaP destinations for different services could not be performed for Moldova. For Azerbaijan, only the publicly available roaming prices were the basis of the analysis for Azerbaijan as the effective prices, which could be different, were not made available to the Study Team. Finally, only the Ukrainian and Georgian international call termination prices were supplied, thereby not allowing for a full analysis of their impact on wholesale costs.

The information concerning the requirement for capacity building related to roaming was fragmented, as most EaP authorities felt that they could not assess the type and number of resources needed in activities not yet undertaken. It was thus decided to make a general evaluation of the staffing needs of the perspective EaP roaming departments based on the analysis of the staff of two EU regulators' departments that are currently engaged in roaming-related regulatory activities ⁴.

⁴ The Regulators were not named for confidentiality reasons involving the distribution of their resources

4 FINDINGS

The Terms of Reference of this Study defined six specific tasks that the Team was asked to accomplish:

1. Analysis of the legal and institutional framework underpinning roaming policies in the EaP
2. Analysis of the existing market data pertaining to the application of roaming policies and key developments in the EaP regional roaming market
3. Recommendations on tools and measures for possible roaming regulation in the EaP
4. Cost-Benefit analysis of possible intervention schemes in roaming regulation in the EaP
5. Recommendations regarding the Regional Roaming Agreement (RRA)
6. Consultations on the scope and results of the Study with key line ministries, regulators and operators in the EaP

The structure of this report takes these tasks as a basis and is built to present the findings resulting from their accomplishment. Thus, the present report:

- 1) analyses the EaP Countries' institutional frameworks and assesses the extent to which the current roaming policies may facilitate or restrict the implementation of desired changes;
- 2) assesses regional data provided by national operators and available in public databases; presents the current situation in the EaP mobile service markets and gauges the potential impact of a reduction in roaming charges;
- 3) expands the evaluation of market impact by studying other regions where reductions in roaming price has already taken place, namely the EU and the Western Balkans. The data for the EU market analysis are extracted from the BEREC Benchmark Reports on International Roaming (11th to 17th round of data collection). Similarly, the Regional Roaming Agreement Report (2016) by the consulting group InterConnect Communications was analysed for the Western Balkans. Based on a best regulatory practices analysis, three possible scenarios for harmonizing EaP roaming prices are proposed;
- 4) analyses the benefits of the proposed intervention schemes, weights them against their costs and assesses the possible effect of each scheme from both the customer's and the operators' point of view;
- 5) identifies the best-balanced scheme for roaming price reductions and recommends a regulatory approach; and
- 6) presents the results of consultations held with major stakeholders.

4.1 ANALYSIS OF THE DOMESTIC LEGAL AND INSTITUTIONAL FRAMEWORK FOR ROAMING POLICIES IN THE EAP

4.1.1.1 ARMENIA

4.1.1.2 OVERVIEW OF THE APPLICABLE LEGISLATIVE, INSTITUTIONAL AND POLICY FRAMEWORK ON ROAMING IN ARMENIA

4.1.1.2.1 MAJOR LAWS/REGULATIONS APPLICABLE TO THE MOBILE TELECOMMUNICATIONS INDUSTRY

The *2005 Electronic Communications Law*⁵ regulates all telecommunications services, while the *2003 law on Public Services Regulatory Body*⁶ establishes and defines the powers of the Public Services Regulatory Commission (the Regulator).

The *Regulator's Decree of 31 July 2013*, establishes the licensing procedures for public electronic communications networks⁷, including for mobile communications operators. Since its creation in 2003, the Regulator has adopted about two hundred normative acts to regulate the telecommunications sector.

4.1.1.2.2 LAWS AND REGULATIONS ON ROAMING

The only rules that relate to international roaming services were adopted through the *Regulator's Decree of 3 December 2009*⁸, which defines how and when operators must provide information on tariffs and conditions of international roaming to their customers, including when they actually use roaming services.

The *2017 Memorandum of Understanding (MoU) between the Russian Federation and Armenia* (i.e. representatives from the Ministries and several operators of the two countries) aims to reducing the current level of international roaming tariffs between the parties. Russian and Armenian operators' signatory to the MoU agreed to reduce their mutual wholesale tariffs, including their respective inter-operator tariffs, through bilateral agreements within six months of the signature of the MoU. It is to be noted that the MoU is not an international treaty and therefore does not create rights and obligations governed by international law.

Armenia, as a Member of the Commonwealth of International States (CIS), signed a *Treaty on Cooperation* and a *Framework Agreement* which cover international roaming. Armenia also agreed to a *Decision of the Council of the CIS Heads of Government* that provides recommendations on international roaming services. For further information see Box 1 at the end of Section 4.1.

Armenia, as a Member of the International Telecommunication Union (ITU) adheres to the *ITU's International Telecommunication Regulations*, that refer *inter alia* to international roaming. For further information see Box 2 at the end of Section 4.1.

Regulation of wholesale services

⁵ Law HO176N

⁶ Law HO18N

⁷ Decree N° 272N

⁸ Decree N° 661N

The Regulator does not control wholesale roaming services. The only supervision of wholesale services is carried out for the termination payments for the interconnection of local services.

Regulation of MVNOs

Mobile Virtual Network Operators are not envisaged by the current legislation on mobile communications.

4.1.1.3 RELEVANT MINISTRIES AND REGULATORY AUTHORITIES

4.1.1.3.1 MINISTRIES

The Ministry of Transport, Communications and Information Technologies is in charge of the development and implementation policy of the electronic communication sector as provided for in the Electronic Communications Law.

4.1.1.3.2 REGULATORY AUTHORITY

Competences

Pursuant to the Law on Public Services Regulatory Body, the Regulator, Public Services Regulatory Commission is an independent body overseeing the regulation of all public services in Armenia, including telecommunications services. The Regulator enforces the application of the regulation of the electronic communications sector.

The Regulator can apply sanctions, including penalties and fines, for violations of the provisions of the Electronic Communication Law or of the conditions of license and authorisation, as well as for violations of the legal acts approved by the Regulator (including rules and regulations). In addition, where appropriate, the Regulator can modify, suspend a license or authorisation, or file a withdrawal request in court.

Appointment

The Public Services Regulatory Commission is composed of five Commissioners, one of whom act as Chairperson, the Deputy Chairperson and three Commissioners. All Commissioners are appointed by the President of the Republic, upon nomination by the Prime Minister, according to an annual rotation system, whereby every year one Commissioner is appointed for a period of five years.

The Public Services Regulatory Body Law was amended on 9 June 2017 to the effect that the Commission will now be composed of the Chairperson and four Commissioners. Based on a recent amendment of 9 June 2017 to the Public Services Regulatory Body Law, the Commissioners must now be civil society representatives and be appointed by the National Assembly of Armenia, upon nomination by the Prime Minister for a period of five years and for a maximum of two consecutive terms.⁹

⁹ This amendment shall enter into force on the day that the next elected President of the Republic of Armenia takes office.

4.1.1.4 REGULATORY CONTROLS

Price control for mobile operators that do not have Significant Market Power (SMP)

Pursuant to Article 27 of the Electronic Communications Law, the Regulator can regulate the tariffs for public electronic communications services provided by non-dominant service providers when such regulation is necessary to protect competition and the public interest. However, the Regulator does not have the authority to regulate the tariffs for Internet access.

Price controls under an SMP determination and separate accounting

The Regulator has the discretionary power to define the tariff regulation applicable to service providers subject to SMP regulation and to establish the maximum tariffs for services.

Some mobile and fixed line services of ArmenTel, which was determined to be an SMP operator, are now regulated based on the methodology approved by the Regulator and the Ministry and adopted by the operator.

Additionally, this operator has separate accounting obligations for services that are subject to tariff regulation and those that are not, both for fixed and mobile networks.

Retail price controls

Mobile operators are not requested to file for tariff approval before applying tariffs to their consumers.

Tariffs and consumer awareness obligations

Decree N° 661N of December 2009 mandates that mobile network operators must make the information on tariffs for international roaming services available on their internet web-page and in their offices for all the countries and operators that provide roaming. In addition, mobile operators are required to send Short Message Services (SMS) on the pricing of their services to their roaming customers. The messages must include the price of outgoing and incoming voice calls, of sending an SMS and using mobile internet while roaming. When the service is provided by a third party, the mobile operators must ensure that all their customers, including their pre-paid ones, may check, free of charge and in real time, their balance and any information concerning their payment, using the USSD (Unstructured Supplementary Service Data) system.

Control of roaming prices

As international roaming prices are based on international regulations and agreements between operators of different countries, the Armenian regulator does not have the authority to directly regulate the roaming tariff reduction.

However, it should be noted that, pursuant to the Electronic Communications Law, in the case of fixed telephony the Regulator can regulate:

- the tariffs for public electronic communications services applied by the dominant service providers
- the tariffs for public electronic communications services applied by the non-dominant service provider to protect competition and the public interest
- the tariffs for universal services provided to the public by the non-dominant service providers.

Moreover, the Commission can establish a maximum tariff for all services.

4.1.1.5 MAIN FEATURES OF THE LEGISLATIVE FRAMEWORK

4.1.1.5.1 NECESSARY PREREQUISITES FOR AN EFFICIENT REGULATORY ROAMING POLICY

To ensure that a new roaming tariff could enter into force, it would be advisable to amend and clarify the Electronic Communications Law so as to allow the Regulator to define a roaming price-cap.

4.1.1.5.2 STEPS REQUIRED FOR THE APPLICATION OF A REGIONAL ROAMING AGREEMENT (RRA) WITHIN THE FRAMEWORK OF DOMESTIC LAW

Once an RRA is signed, it will have to be ratified by the Parliament, in a process that might require some time. Ratification by the Parliament will allow the Armenian Government to adopt and enforce the relevant roaming tariff reductions directly, even without initially requesting amendments to the current Electronic Communications Law.

4.1.1.6 MAJOR PARTICULARITIES OF THE POLICY APPROACH

Armenia like Georgia, Moldova and Ukraine has a regulatory framework very similar to the EU, with an independent regulator and SMP regulations.

The 2017 Memorandum of Understanding (MoU) on roaming tariff reductions between the Russian Federation and the Republic of Armenia is currently being implemented by the signatories and its results are not known.

4.1.1.7 MAJOR GAPS COMPARED TO THE EU

Except for general regulations on the provision of international roaming there are no regulations on roaming in Armenia and, in particular, no regulations on roaming tariffs.

4.1.1.8 FREE TRADE AGREEMENTS

Armenia is a Member of the WTO since 5 February 2003. Commitments in telecommunications services were first made during the Uruguay Round (1986-94), mostly in value-added services. In post-Uruguay Round negotiations (1994-97), WTO members negotiated on basic telecommunications services¹⁰. Since then, commitments have been made by new members upon

¹⁰ WTO, Uruguay Round Ministerial decision on negotiations on basic telecommunications, adopted on 15 April 1994

accession to the WTO, or unilaterally at any time. Armenia committed to a number of communications services¹¹ in the General Agreement on Trade in Services (GATS), which consists of a common body of framework articles and annexes, including one annex on telecommunications, and individual schedules containing each member's level of commitments¹². As far as mobile services are concerned, only mobile voice and data services¹³ are mentioned. Thus, international roaming is not in the list of services that Armenia committed to and is not part of the GATS list of telecommunications services.

Furthermore, since a roaming agreement between the EaP Countries will not impose restrictions on market access it would not have any effect on Armenia's obligations towards the WTO. Further considerations on WTO that apply to all EaP Countries are in Box 1 at the end of Section 4.1.

Armenia has no other FTA agreements on services.

Armenia has signed an agreement within the Eurasian Economic Union on customs union and economic integration and a Free Trade Area agreement with CIS. Both agreements are referred to in Box 1 at the end of Section 4.1.

Additional remarks received by the Study Team from the Armenian Regulator:

- the regulation on roaming and, in particular, reductions of tariffs may have negative effect on the overall income of mobile network operators;
- roaming agreements should not be limited to the EaP Countries. Rather, they should be set in a wider framework of a regional free-trade agreement, whereby EU roaming would be extended to the EaP Countries.

4.1.1.9 CAPACITY BUILDING

The Regulation of the Telecommunications Sector is managed by the thirteen employee-strong telecommunications department within the Public Services Regulatory Commission, which is a multi-sector regulatory body also covering the energy, water and gas sectors, amongst others.

Capacity building activities for the Commission employees are mainly carried out within the general framework of the training of civil servants, which does not usually touch upon the regulation of telecommunications sector.

It is recommended to take into consideration the capacity building suggestions provided by two EU Regulators (see Section 4.3.7), who consider that a multi-task team, composed of lawyers, economists and engineers is necessary to address roaming tasks from different angles. The team will need to be composed of the equivalent resources of 1.7 person per year. In addition, a specialised training programme should be implemented on telecommunications and on roaming.

¹¹ WTO, Armenia, Schedule of Specific Commitments, GATS/SC/137, 29 April 2004

¹² WTO, International mobile roaming possible implications for GATS, Note by the Secretariat, S/C/W/337, 13 July 2011

¹³ CPC 75213 and 75291 (Central Product Classification)

4.1.2 AZERBAIJAN

4.1.2.1 OVERVIEW OF THE APPLICABLE LEGISLATIVE, INSTITUTIONAL AND POLICY FRAMEWORK ON ROAMING

4.1.2.1.1 MAJOR LAWS/REGULATIONS APPLICABLE TO THE MOBILE TELECOMMUNICATIONS INDUSTRY IN AZERBAIJAN

The *1998 Information, Informatisation and Information Protection Law*¹⁴ defines how information resources are developed through collection, usage, storage, searching and dissemination of data. It regulates the creation and usage of information systems and technologies and their provision. It also provides for the resolution of conflicts related to data protection and defines the participants' rights in the context of data processes.

The *2005 Telecommunications Law*¹⁵ establishes the legal, economic and organizational basis for telecommunications activities in Azerbaijan and regulates the effective planning and fair use of telecommunications resources.

The Regulation of the Ministry of Transport, Communications and High Technologies, approved by Decree of the President of the Republic in 2018 defines measures on the improvement and management in transport, communications and high technologies. The Regulation describes the powers of the Ministry in the field of telecommunications¹⁶.

4.1.2.1.2 LAWS/REGULATIONS APPLICABLE TO ROAMING

On 29 April 2003, the *Presidential Decree N° 1219* ratified the Agreement on Cooperation to Develop and Use Mobile Communication Systems, which contains certain provisions on roaming.

The *2014 Law on the Approval of International Telecommunications Regulation*¹⁷, ratified the International Telecommunication Regulations adopted by the ITU Dubai World Conference on International Telecommunications of 2012. The law covers issues such as accounting, charging, payments and international roaming. For further information see Box 2 at the end of Section 4.1.

The legal framework in Azerbaijan does not envisage the introduction of MVNOs.

Azerbaijan, as a Member of the Commonwealth of **Independent** States (CIS), signed a *Treaty on Cooperation* that covers international roaming. Further information on the Treaty can be found in Box 1 at the end of Section 4.1.

¹⁴ Law N° 460-IQ of the Republic of Azerbaijan on Information, Informatisation, and Protection of Information, dated 3 April 1998 (the "Information Law")

¹⁵ Law N° 927-IIQ of the Republic of Azerbaijan on Telecommunication, dated 14 June 2005 (the "Telecommunication Law")

¹⁶ The regulation of the Ministry of Transport, Communications and High Technologies, approved by Decree N° 1785 of the President of the Republic of Azerbaijan, dated 12 January 2018

¹⁷ Law N° 895-IVQ of 3 February 2014

4.1.2.2 RELEVANT MINISTRIES AND REGULATORY AUTHORITIES

4.1.2.2.1 MINISTRIES

There is no independent regulatory authority in Azerbaijan. Regulations are defined and implemented by the Ministry of Transport, Communications and High Technologies. The Ministry's Regulatory Department applies them and, in particular, coordinates the activities of the Ministry related to the regulation of postal and telecommunications services, including relationships with telecommunications operators and providers.

The Regulatory Department staff are civil servants, hired according to the Law on Civil Service¹⁸ and the Recruitment Rules for civil service in state agencies¹⁹.

The Ministry has sanctioning powers according to the Code of Administrative Offences²⁰ including the possibility, in case of failure by the license holder to comply with the license conditions, to suspend or cancel the license, after submitting a justification. It can also, further to the review of the case, impose an administrative penalty²¹. Finally, it can refer the case to the judiciary for review²².

The Ministry has no authority to take decisions on the reduction of roaming tariffs.

4.1.2.3 REGULATORY CONTROLS

Based on proposals by the Ministry of Transport, Communications and High Technologies, the Tariff Council sets the prices of retail telecommunications services, while wholesale prices are regulated independently by the Ministry.

The Minister of the Economy is the Chairperson of the Tariff Council, its Members are the Deputy Ministers of Finance, Taxes, Justice, Energy, Transport, Communications and High Technologies, Agriculture, Health, Education, Labour and Social Defence, as well as the Vice-Chairpersons of the Customs Committee and the State City Building and Architecture Committee. The decisions of the Council are taken collegially.

The Tariff Council prepares normative documents on tariffs, resolves regulatory tariff disputes and is involved in international and regional pricing regulations in accordance with applicable regulation²³.

The Ministry of Transport, Communications and High Technologies applies specific regulations to operators that it considers to be dominant, including the control of their tariffs. Dominance is assessed in accordance with definitions set-out in the anti-monopoly²⁴ and fair competition²⁵ legislation. Telecommunications operators are not required to submit tariffs or requests for their prior

¹⁸ Law N° 926-IQ of 21 July 2000

¹⁹ Law N°108 of 24 June 2009,

²⁰ Chapter 31 of the Code of Administrative Offences

²¹ Decree N°795 of the President of the Republic of 15 February 2016

²² Decree N°1361 of the President of the Republic of 3 May 2017

²³ Including Decree N° 341 of 26 December 2005

²⁴ Law N° 526 of 4 March.1993

²⁵ Law N° 1049 of 2 June1995

approval and can determine them freely ²⁶. However, certain tariffs defined by the law ²⁷ as service tariffs may require the Tariff Council's prior approval.

Operators are required to publish their tariffs and price lists on their official websites open to the public.

4.1.2.4 MAIN FEATURES OF THE LEGISLATIVE FRAMEWORK

4.1.2.4.1 NECESSARY PREREQUISITES TO DELIVER AN EFFICIENT REGULATORY ROAMING POLICY

The current regulatory framework defines the legal and economic aspects and organisational features relative to the provision of mobile telecommunications services and networks and services to users in Azerbaijan. International roaming is ensured by Azerbaijan's international commitments.

Neither the Ministry of Transport, Communications and High Technologies, nor the Tariff Council are granted by the law the power to reduce roaming tariffs.

Whilst the Ministry of Transport, Communications and High Technologies has some power to control operators that are dominant on their markets, the Azerbaijani regulatory framework, unlike in Armenia, Georgia and Ukraine, is quite different from the EU. The EU's SMP regulatory aspects for Significant Market Power have led the European Union's NRAs to analyse, monitor and decide upon mobile tariffs even before the adoption of the EU roaming framework.

Finally, the currently limited powers of the Ministry - and even of the judiciary - to sanction the operators would make it difficult for the Ministry to enforce its decisions if the operators refuse abiding by them.

4.1.2.4.2 STEPS REQUIRED FOR THE APPLICATION IN DOMESTIC LAW OF A REGIONAL ROAMING AGREEMENT

Once the RRA is signed by the Minister of Transport, Communications and High Technologies, it will need to be ratified by the Parliament.

4.1.2.5 MAJOR PARTICULARITIES OF THE POLICY APPROACH

Azerbaijan has no independent Regulator or SMP regulations, which makes its regulatory framework quite different from other EaP Countries, except for Belarus.

However, the Telecommunications Law foresees that special rules will be applied to dominant operators by the Ministry of Transport, Communications and High Technologies. Thus, some of the principles of law applicable in other EaP Countries are also applicable in Azerbaijan.

4.1.2.6 MAJOR GAPS COMPARED TO THE EU

Azerbaijan's specific regulations related to roaming cover mainly its international commitments and do not envisage any possibility to intervene on roaming prices.

²⁶ Article 32.1.3, Telecommunications Law

²⁷ Law on regulated tariffs N° 462-IIQ, 30.May.2003

4.1.2.7 FREE TRADE AGREEMENTS

As Azerbaijan is not yet a member of the WTO, an RRA can have no legal consequences on its WTO commitments.

Azerbaijan has signed an FTA agreement on services through the Organisation for Democracy and Economic Development (GUAM) with Georgia, Moldova and Ukraine. It does not involve telecommunications.

4.1.2.8 CAPACITY BUILDING

In the Regulatory Department of the Ministry of Transport, Communications and High Technologies, about ten employees are tasked with taking care of Eastern Partnership regulation, in particular, with studying regulatory frameworks in other countries.

New specific training would be required in for the management and implementation of roaming.

In view of the absence of SMP regulation it is expected that the new staff needed in connection with roaming issues should be fully trained in these aspects.

As to the number of resources needed, discussions and meetings held with Ministry of Transport, Telecommunications and High Technologies, led to consider that the Ministry could take into consideration the suggestions provided by the EU Regulators in Section 4.3.7. These consider that a multi-task team, composed of lawyers, economists and engineers is necessary to address roaming tasks from different angles. The team will need to be composed of the equivalent resources of 1.7 persons per year.

4.1.3 BELARUS

4.1.3.1 OVERVIEW OF THE APPLICABLE LEGISLATIVE, INSTITUTIONAL AND POLICY FRAMEWORK ON ROAMING

4.1.3.1.1 MAJOR LAWS/REGULATIONS APPLICABLE TO THE MOBILE TELECOMMUNICATIONS INDUSTRY IN BELARUS

The *Telecommunications Law of 2005*²⁸ regulates the framework of the telecommunications services.

*The Decree of the President of the Republic of 2011*²⁹ identifies the state-regulated telecommunications and postal services of general use. The Council of Ministers determines its list.

A *Decree of the Council of Ministers of 2006*³⁰ determines the rules for the provision of telecommunications services; the procedure for concluding and executing contracts, the description of how are established the users' information obligations.

²⁸ Law of the Republic of Belarus N° 45-3 of 19 July 2005 (Telecommunications Law)

²⁹ Decree of the President of the Republic N° 72 of 25 February 2011

³⁰ Council of Ministers Decree N°1055 of 17 August 2006 on the Approval of the Rules for the Provision of Telecommunication Services

A *Presidential Decree of 2010*³¹ determines who can operate the United Republican Data Network (URDN) in the field of information and communication technologies and establishes the Operational and Analytical Centre (OAC) as Regulator.

A *Presidential Decree of 2011*³² establishes the independence of the Regulator (OAC) and defines its functions and activities.

The *Council of Ministers Decree of 2016*³³ approved the Agreement on Inter-operator Settlements for **the provision of international telecommunication services** in the CIS countries which recommends tariff regulation principles.

4.1.3.1.2 LAWS/REGULATIONS APPLICABLE TO ROAMING

No law or regulation envisages measures related to roaming in Belarus.

However, some normative acts were adopted to harmonise sector legislation amongst the CIS countries. Belarus, as member of the CIS, signed a *Treaty on Cooperation* and a *Framework Agreement* which cover international roaming. Belarus also agreed to a *Decision of the Council of the CIS Heads of Government* that provides recommendations on international roaming services. Further information on these agreements and decision can be found in Box 1 at the end of Section 4.1.

Belarus, as a Member of the International Telecommunication Union (ITU) adheres to its *International Telecommunication Regulations*, which refer *inter alia* to international roaming. For further information see Box 2 at the end of Section 4.1.

Regulation of MVNOs

Mobile Virtual Network Operators are not envisaged in the Belarusian legislation.

4.1.3.2 RELEVANT AUTHORITIES

4.1.3.2.1 THE PRESIDENT OF THE REPUBLIC OF BELARUS AND THE COUNCIL OF MINISTERS

The President of the Republic of Belarus defines the unified telecommunications policy and regulations in accordance with the Constitution³⁴.

The Council of Ministers has the responsibility of developing international cooperation, approving the development of telecommunications and ensuring its high-level implementation, such as through National Strategies for the development of ICT or by approving the radio frequency table in use by the Belarusian radio services.

³¹ Presidential Decree N° 515/2010 of 30 September 2010 on Measures for the Development of a Data Transmission Network in the Republic of Belarus

³² Presidential Decree N° 515/2011 of 8 November 2011 on the Development of the Information Society

³³ Council of Ministers Decree N° 129 of 17 January 2016

³⁴ Article 7 of the Telecommunications Law

The President and the Council of Ministers determine the applicable pricing of telecommunications services either directly or based on recommendations made by the Ministry of Communications.

4.1.3.2.2 MINISTRIES

Competences

The Ministry of Communications and Informatisation manages and implements the communications and information policy, as defined by the *Decree of the Council of Ministers N°302 of 17 March 2004*. Its decisions are binding for all public and private corporations that carry out telecommunications activities³⁵. The Ministry of Communications can recommend to the Council of Ministries or to the Operational and Analytical Centre a pricing policy to be adopted by these organisations.

The Ministry of Antimonopoly Regulation and Trade implements the pricing regulations for **local and long-distance telephone service**, postal services, **traffic transit between networks of mobile operators**, controls the prices of the dominant mobile operators³⁶. It determines the maximum prices for telecommunications services defined by the President and the Council of Ministers.

4.1.3.2.3 REGULATORY AUTHORITY

Competences

The Operational and Analytical Centre (OAC) functions under the President of Belarus to regulate information and communications technologies.

The United Republican Data Network (URDN) connects all the telecommunications networks in Belarus that require to exchange traffic.

The OAC:

- appoints the URDN operators who will be in charge of interconnecting with all telecommunications operators in Belarus for their national and international traffic and foreign telecommunication networks;
- determines, for all market participants, the IP-protocol mandatory directions for data and telephony communications;
- regulates the access to and use of the URDN infrastructure;
- determines, with the Ministry of Communications and Informatisation, the procedure and the conditions to connect telecommunications networks to the URDN³⁷.

The OAC Council is chaired by the President of the Republic, and composed of the deputies of the Chairman, the secretary and the members of the Council who work on a voluntary basis. The Council is appointed by the President. The regulatory framework does not attribute to the Regulator or the

³⁵ Decree of the Council of Ministers of the Republic of Belarus N°302 of 17 March 2004 on the Approval of the Regulations on the Ministry of Communications, Informatisation of the Republic of Belarus and introduction of amendments to some resolutions of the Government of the Republic of Belarus

³⁶ Decree of the Council of Ministers of the Republic of Belarus N°35 of 17 January 2014 approved a list of telecommunication services and postal communication services of general use, and tariffs which are regulated by the Ministry of Antimonopoly Regulation and Trade.

³⁷ Annex 1 to the Decree of the President of the Republic of Belarus N° 72 of 25 February 2011 "On some issues of regulation of prices (tariffs) in the Republic of Belarus"

Ministry of Communications and Informatisation the power to sanction the operators if they do not comply with their obligations.

The current legislation does not define the entity authorised to regulate roaming prices, which are defined by the mobile operators.

4.1.3.3 REGULATORY CONTROLS

Wholesale prices.

The URDN network is operated by three mainly government-owned operators³⁸ who primarily provide voice interconnection services to telecommunications operators. The traffic of voice international and roaming service passes through the URDN network. Reductions in roaming voice tariffs may imply a reduction of URDN traffic transmission tariffs and therefore a reduction of state revenues. Only two authorized URDN network operators offer a wholesale service. Prices for traffic transmission between cellular mobile telecommunications networks within the country are regulated.

Retail prices

Mobile operators are free to apply their pricing policies without any control from the regulatory authority or the Ministry, except if the operators are designated as having dominant market power because they control 20% or more of the market.

The Ministry of Antimonopoly Regulation and Trade can also define price caps for certain communications services³⁹.

Price controls

Two mobile operators, VELCOM (Telekom Austria Group) and Mobile TeleSystems (MTS) are considered to hold a dominant position in commodity markets. They are therefore required to justify their local voice tariffs to the Ministry of Antimonopoly Regulation and Trade. In addition, for operators that are dominant in the mobile telephony market the profitability margin is capped at 25 per cent of their costs⁴⁰.

Price or tariff publication obligations

Mobile operators are requested to notify their users of changes to their contracts and tariffs plans by making the information available on the operators' official websites, or by sending SMS messages no later than ten days before the application of the changes. Mobile operators are also required to inform their users of these changes by placing advertisements in the media and through their service centres and sales services.

³⁸ The Beltelecom Republican Unitary Telecommunications Enterprise, the Republican Unitary Enterprise National traffic exchange centre (NTEC) and the Joint Limited Liability Company Belarusian Cloud Technologies

³⁹ Decree of the Ministry of Antimonopoly Regulation and Trade of the Republic of Belarus of 13 February 2017, N° 12 "On Tariffs for Telecommunication Services and Postal Communication of General Use"

⁴⁰ Annex 4 to the Decree of the Ministry of Economy N° 121 of 28 June 2007 - 6. Art. 4 of the Council of Ministers of the Republic of Belarus regulation of 17 August 2006, N°1055 Approval of the rules for the provision of Telecommunications services

4.1.3.4 MAIN FEATURES OF THE LEGISLATIVE FRAMEWORK

4.1.3.4.1 NECESSARY PREREQUISITES TO DELIVER AN EFFICIENT REGULATORY ROAMING POLICY

In Belarus, the President of the Republic and the Council of Ministers determine the applicable pricing of telecommunications services either directly or based upon recommendations made by the Ministry of Communications.

Several alternatives could be envisaged for the regulation of roaming tariffs:

- In accordance with the Telecommunications Law and upon a proposal from the Ministry of Communications **and Informatisation**, the President can promulgate a Presidential Decree reducing such tariffs.
- Alternatively, the Council of Ministers could include roaming tariffs in the list of regulated-price services. Further to such decision, the Ministry of Antimonopoly and Trade could define the actual wholesale and retail tariffs to be applied, based on recommendations from the Ministry of Communications **and Informatisation**.
- Specific recommendations of the Ministry of Communications **and Informatisation**, would need to contain indications as to whether and how the OAC should be involved and whether the URDN wholesale prices of international roaming should be adjusted.
- Finally, the Telecommunications Law could be amended to create an independent regulatory authority in charge of implementing the RRA and monitoring the application of its rules by the operators ⁴¹.

The second solution above seems to be the simplest and the quickest solution as it does not require any change of law and is based on the existing powers of the relevant stakeholders.

4.1.3.4.2 STEPS REQUIRED FOR THE APPLICATION IN DOMESTIC LAW OF A REGIONAL ROAMING AGREEMENT

Further to the approval and signature of an RRA by the President of the Republic and in view of the current legal framework, the Ministry of Communications **and Informatisation**, the OAC and the Council of Ministers might become involved in its development. Their role might entail the preparation of an amendment of the Telecommunications Law to empower the OAC or the Ministry of Communications **and Informatisation** to impose wholesale and retail price tariffs to mobile operators. In addition, the OAC might also consider a reduction of the URDN network wholesale price services.

4.1.3.5 MAJOR PARTICULARITIES OF THE POLICY APPROACH

The existence of the URDN transit network for all national and international communications implies that a different legal framework and policy approach from the other EaP Countries will necessarily have to be considered by the legislator in Belarus when signing and implementing an International Roaming Agreement.

⁴¹ This solution is currently not favoured as there is a policy to reduce the number of agencies and entities in the Republic of Belarus

4.1.3.6 MAJOR GAPS COMPARED TO THE EU.

There are no specific Belarusian roaming regulations.

4.1.3.7 FREE TRADE AGREEMENTS

Belarus is not yet a member of the WTO and does not have any FTAs in services.

Belarus has signed an agreement within the Eurasian Economic Union on customs union and economic integration and a Free Trade Area agreement with CIS. Both agreements are referred to in Box 1 at the end of Section 4.1.

4.1.3.8 CAPACITY BUILDING

In view of the wide gaps between the EU regulation and that of Belarus, it is expected that a specialised training programme should be implemented on telecommunications and on roaming.

It is recommended to take into consideration the building capacity suggestions provided by two EU Regulators (see Section 4.3.7), who consider that a multi-task team composed of lawyers, economists and engineers is necessary to address roaming tasks from different angles, with a total workforce equivalent to 1.7 persons per year.

4.1.4 GEORGIA

4.1.4.1 OVERVIEW OF THE APPLICABLE LEGISLATIVE, INSTITUTIONAL AND POLICY FRAMEWORK ON ROAMING

4.1.4.1.1 MAJOR LAWS/REGULATIONS APPLICABLE TO THE MOBILE TELECOMMUNICATIONS INDUSTRY

The *Electronic Communications Law of 2 June 2005*⁴², sets a legal and economic framework for the activities carried out by electronic communications networks and through their associated facilities, defines the principles for creating and regulating a competitive environment in this field, establishes the functions of the national regulatory authority - the Georgian National Communications Commission (GNCC) - and describes the rights and obligations of the users of electronic communication networks and facilities as well as of the providers of such services.

The *Law on National Regulatory Bodies of 13 September 2002*⁴³ determines the legal framework and the institutional environment for the functions of independent regulatory authorities in Georgia, including the GNCC, in order to ensure a balance of interests between licence holders and consumers and to guarantee pricing and service supply efficiency. The GNCC has competence on telecommunications and broadcasting markets.

⁴² Law of Georgia “[On Electronic Communications](#)” N°1514, Date of publishing - 06/06/2005, with Consolidated publications for 22/03/2017.

⁴³ Law of Georgia “[On National Regulatory Bodies](#)” No 1666, Date of publishing - 30/09/2002, with Consolidated publications for 30/06/2017.

The *Broadcasting Law of 23 December 2004*⁴⁴ determines the procedure to exercise broadcasting activities in accordance with the principles of freedom of speech and expression and the principles of free enterprise, as well as the procedure for setting up the national regulatory body for broadcasting and telecommunications and the appointment of the Commissioners, their rights and obligations, their term of office, their independence. It also determines the functions of the regulatory body and conditions for the regulation of activities in this field. It should be noted that Article 17, paragraph 7 of the Constitution of Georgia ensures the financial and institutional independence to the national regulatory body in the field of electronic communications and media.

The Regulator established a legal framework for cost accounting, pursuant to its own requirement of methodological rules for the separate submission of cost accounting and expenditures by authorised undertakings. The framework defines the methodology for SMP operators to calculate the distribution of their accounting expenses and services tariffs for activities in the relevant electronic communications market.

The *GNCC's resolution of 17 March 2006*, on Regulations on the Rules of Provision of Services and Protection of Consumer Rights in the Sphere of Electronic Communications⁴⁵ defines roaming as a mobile service.

4.1.4.1.2 LAWS/REGULATIONS APPLICABLE TO ROAMING

There is no definition of roaming in the Georgian legal framework. Although the law⁴⁶ includes the access to virtual network services.

Georgia, as a Member of the International Telecommunication Union (ITU) adheres to its International Telecommunication Regulations, which refer inter alia to international roaming. For further information see Box 2 at the end of Section 4.1.

4.1.4.2 RELEVANT MINISTRIES AND REGULATORY AUTHORITIES

4.1.4.2.1 MINISTRY OF THE ECONOMY AND SUSTAINABLE DEVELOPMENT

Competences

Based on the Law on Electronic Communications, main principles of the national electronic communications policy are determined by the Government, upon proposals by the Minister of Economy and Sustainable Development and then submitted to the Parliament for approval. The Prime Minister directs the main areas of the national policy and the government implements the relevant principles in accordance with applicable laws and procedures⁴⁷.

⁴⁴ Law of Georgia "On Broadcasting", No 780- Date of publishing - 18/01/2005, with Consolidated publications for 26/07/2017.

⁴⁵ Resolution No. 3 of the Georgian National Communications Commission, March 17, 2006, Amendments Decree No. 17 of the Georgian National Communications Commission, October 17, 2011.

⁴⁶ Law of Georgia on Electronic Communications op.cit., Article 2

⁴⁷ Law of Georgia "On Electronic Communication" Article 6, determining and directing state policy in the field of Electronic Communications :

- 1- Main directions of state policy in the field of electronic communications, taking into account the proposals of the Ministry of Economy and Sustainable Development of Georgia, shall be developed by the Government of Georgia and submitted to the Parliament of Georgia for approval.
- 2- Main areas of State policy in the field of electronic communications shall be directed by the Prime Minister of Georgia.

4.1.4.2.2 REGULATORY AUTHORITY

Competences

The GNCC is responsible for regulating the telecommunications and media sectors.

In exercising its authority, the Regulator applies the main principles of the national electronic communications policy ⁴⁸.

The Regulator independently regulates the activities of the telecommunications operators and the use of the radio frequency spectrum and numbering resources by granting licenses, authorisations and permits. It adopts legal acts, monitors and controls their execution and imposes sanctions within the powers determined by the Telecommunications Law

The main functions of the Regulator are: to study and analyse the relevant segments of the service market, identify operators with SMP, impose specific obligations, monitor and supervise their execution. It regulates access to the elements of an electronic communication network and the technical, economic and legal relations related to interconnection ⁴⁹.

Appointment

The GNCC is composed of five members, appointed for six years and for a maximum of two terms. By Presidential Decree, an open competition is launched for the election of candidates, who must have strict professional prerequisites as defined by the law. The President of Georgia and the Government select at least three candidates for each vacant position. When the agreed candidates' list of the President and the Government is countersigned by the Prime Minister, the President of Georgia submits it to the Parliament, which elects the members of the Commission.

The Commission elects its chairperson from amongst its members for a three years term. The chairperson can hold office for only one term ⁵⁰.

Independence and limitations

The GNCC is a public law legal entity, it is permanent and independent of the state authority. Its independence is enshrined in the Constitution of Georgia. Since its establishment on 1 July 2000 its regulatory functions and those of the Government, as the policy making body, are separated.

While the Ministry of Economy and Sustainable Development and the Government define the long-term strategies, the Regulator is responsible for the application of the regulation including the ex-ante regulation, which is applied to the operators when they are notified as having SMP.

Sanctions

Only the Regulator may apply sanctions and revoke the licenses for telecommunications services.

⁴⁸ Article 6, ibidem

⁴⁹ Art 11, ibidem

⁵⁰ Law of Georgia "On Broadcasting", No 780- Date of publishing - 18/01/2005, with Consolidated publications for 26/07/2017

4.1.4.3 REGULATORY CONTROLS

When imposing tariff regulation and cost accounting obligations, the Regulator may require mobile operators that have Significant Market Power to:

- a) demonstrate that their tariffs are cost-oriented and comply with the Regulator's methodology guidelines;
- b) submit to the Regulator data approved by an independent auditor;
- c) change their tariffs if they have the effect of restricting competition;
- d) impose price-caps for the access to relevant network elements, functional resources and free capacities.

Accounting separation

The Regulator has established methodological guidelines for cost accounting separation and expenditures that it may impose onto mobile operators. Accordingly, mobile operators shall set up their methodologies of expenses registration and submit them to the Regulator. Once the methodology is approved by the Regulator, a mobile operator shall comply with its conditions.

Price control for mobile operators that do not have Significant Market Power (SMP)

Pursuant to Article 29 and 30 of the Electronic Communications Law, the Regulator may only impose tariff regulations to operators that have Significant Market Power.

Price controls under an SMP determination

Since 2016, three Georgian mobile operators must comply with accounting separation and/or price controls under an SMP determination, except for resale obligations.

Wholesale price controls

The Regulator's decision on the Results of Competition Research and Analysis of the relevant access and interconnection segment of the mobile network wholesale market (call origination and termination) established the obligations of information transparency, non-discrimination, accounting separation, access provision to the relevant elements of electronic communications network, tariff regulation and cost accounting. These included tariff caps and other special SMP operators' obligations. The Regulator also promulgated a decision on the regulation of mobile wholesale market tariffs.

Retail price controls

The Regulator controls SMP operators' retail price caps, in accordance with the legislation.

File tariff approvals or requests

Access and interconnection offers, including the access tariff to the local access network, must be published by the access service operator as stipulated by the Regulator. Reference offers must be published on the Regulator's web page.

Price or tariff publication obligations

Users have the right to obtain tariffs information on the electronic communications services, their terms of provision, cost accounting and detailed billing. The Regulator also imposed more detailed obligations on mobile operators, so that users shall receive for each type of service: its tariff, date, time of provision and duration. The number of outgoing calls should also be detailed. In addition, appropriate pricing information should be sent to users at least ten working days before a new price is applied.

4.1.4.4 MAIN FEATURES OF THE LEGISLATIVE FRAMEWORK

4.1.4.4.1 NECESSARY PREREQUISITES TO DELIVER AN EFFICIENT REGULATORY ROAMING POLICY

Pursuant to Articles 29 and 30 of the Electronic Communications Law, the powers of the Regulator are restricted to Significant Market Power interventions. In SMP cases the Regulator may impose obligations on a mobile operator. According to Article 35 thereof, this includes regulating tariffs and setting up their maximum value.

Amendments to the Electronic Communications Law will be necessary to allow the Regulator to impose a reduction of roaming prices on the mobile operators even in the absence of SMP.

4.1.4.4.2 STEPS REQUIRED FOR THE APPLICATION IN DOMESTIC LAW OF AN INTERNATIONAL ROAMING AGREEMENT

Once signed by a Ministry representative, the RRA will constitute an international treaty that should be ratified by Parliament in order to be transposed into national law. As proposed in Section 4.5, the signatories of the RRA can specify that the Regulator will implement the RRA.

Amendments to the Electronic Communications Law will be necessary to ensure that the powers of the Regulator are defined in detail and consistent with its functions.

4.1.4.5 MAJOR PARTICULARITIES OF THE POLICY APPROACH

Georgia is one of the four EaP Countries, with Armenia, Moldova and Ukraine, whose regulatory framework is very similar to that of the EU. Georgia has adopted the SMP regulations and has an independent regulator. It should be noted that in September 2017, the Lithuanian and Georgian regulators signed the Memorandum of Understanding with the intent to reduce roaming tariffs between the two countries. In addition to the two regulators, also mobile operators' representatives from both countries signed the Memorandum.

In June 2017, another Memorandum of Understanding was signed between the Latvian and Georgian regulators, as well as the mobile operators of these two countries on reduction of roaming tariffs between Latvia and Georgia.

The first steps towards tariff reductions and per- second rounding of retail tariffs were achieved.

4.1.4.6 MAJOR GAPS COMPARED TO THE EU.

The Georgian telecommunications framework just mentions roaming services as being part of the mobile services provided.

Georgia does not have a roaming tariff policy in place.

4.1.4.7 FREE TRADE AGREEMENTS

Legal consequences of the RRA in relation to the DCFTAs agreement

International roaming is not included in the DCFTA agreement between the EU and Georgia, so the RRA will have no impact on the DCFTA agreement.

Legal consequences of the RRA in relation to the WTO

Georgia is a Member of the WTO since 14 June 2000. Commitments in telecommunications services were first made during the Uruguay Round (1986-94), mostly in value-added services. In post-Uruguay Round negotiations (1994-97), WTO members negotiated on basic telecommunications services. Since then, commitments have been made by new members, upon accession to the WTO, or unilaterally at any time. Georgia committed to a number of communications services in the General Agreement on Trade in Services (GATS), which consists of a common body of framework articles and annexes, including one annex on telecommunications and individual schedules containing each member's level of commitments. As far as mobile services are concerned, only mobile voice and data services are mentioned. Thus, international roaming is not in the list of services that Georgia committed to and is not part of the GATS list of telecommunications services.

Furthermore, as a roaming agreement between the EaP Countries will not impose restrictions on market access it would have no effect on Georgia's obligations towards the WTO. Further considerations on WTO that apply to all EaP Countries are in Box 1 at the end of Section 4.1.

Georgia has signed an FTA agreement on services through the Organisation for Democracy and Economic Development (GUAM) with Armenia, Moldova and Ukraine. It does not apply to telecommunications.

Georgia has also signed an FTA agreement on goods and services, which has entered into force on 1 September 2017. The other signatories are Iceland, Liechtenstein, Norway and Switzerland. Although the agreement covers telecommunications services, the commitments are defined in an Annex that does not include roaming.

4.1.4.8 CAPACITY BUILDING

Since the GNCC regulates wholesale and, to a certain extent, retail prices, it has expertise in SMP requirements and control of the mobile operators on the market. Therefore, it is unlikely that it will need any capacity building exercise. However, reductions and/or mobility of staff working on cost methodologies may result in some small-scale capacity building needs.

Three units are responsible for these issues. Two of them, namely the Market Analysis and Strategic Development Department and the Telecom Markets Regulation Department, might be impacted by a new roaming regulation, whereas the ICT Department would not be involved.

It is recommended that the capacity building suggestions provided by the EU Regulators in Section 4.3.7 are adopted, which consider that a multi-task team composed of lawyers, economists and engineers is necessary to address roaming tasks from different angles. The team will need to use the equivalent resources of 1.7 persons per year.

4.1.5 MOLDOVA

4.1.5.1 OVERVIEW OF THE APPLICABLE LEGISLATIVE, INSTITUTIONAL AND POLICY FRAMEWORK ON ROAMING

4.1.5.1.1 MAJOR LAWS/REGULATIONS APPLICABLE TO THE MOBILE TELECOMMUNICATIONS INDUSTRY

The *Electronic Communications Act N° 241 of 2007*⁵¹ sets-out the general rules and terms for the electronic communications sector in Moldova and outlines the general policy. It defines the central authority's powers and the general regulatory framework for electronic communications networks and services. By defining the powers and objectives of the regulatory authority, it establishes the rights and obligations of the State and of natural and legal persons in the process of establishment, management and use of electronic communications networks, as well as the conditions for the management and use of electronic communications networks. The goal of the Electronic Communications Act is to provide the population with modern and useful electronic communications services of high quality at reasonable prices and to ensure free access to public electronic communications services.

The *Law of 10 March 2016*⁵² on Access to Properties and Infrastructure associated with Public Electronic Communications Networks establishes the rules and conditions to allow providers of public electronic communications networks access to premises and shared use of infrastructures in order to build or benefit from electronic communications networks.

The *Decision N°12 of the Regulator on the Rules of Interconnection* of 31 January 2009 approves the regulations on interconnection⁵³.

The *Decision N° 55 of the Regulator of 29 December 2008 on the Regulations on Relevant Markets in Electronic Communications*, defines the rules to designate providers of electronic communications networks and/or Services with Significant Market Power on these Markets⁵⁴.

The *Decision N° 10 of the Regulator of 28 August 2008 on the Regulations on General Authorisation and License Regime*, defines the rules for the attribution of licences and the use of limited resources for the provision of public electronic communications networks and services⁵⁵.

4.1.5.1.2 LAWS/REGULATIONS APPLICABLE TO ROAMING

Moldova's legal framework does not include the notion of roaming.

As a Member of the International Telecommunication Union, Moldova adheres to its International Telecommunication Regulations, which refer *inter alia* to international roaming. For further information see Box 2 at the end of Section 4.1.

Regulation of MVNOs

⁵¹ No. 241-XVI, 15.November 2007, Official Monitor N°51-54/155 of 14 March 2008

⁵² Official Gazette N°100-105/194 of 15 April .04.2016

⁵³ ANRCETI Administrative Board Decision N°12 of , 31 January 1.2009

⁵⁴ ANRCETI Administrative Board Decision N°55 of 29 December .2.2008

⁵⁵ ANRCETI Administrative Board Decision N°10 of 28 August 2008

The national legal and regulatory framework sets the conditions for the provision of MVNO services⁵⁶. A natural person or legal entity intending to provide mobile virtual network services shall file a notification with the Regulator, based on the general authorisation regime, and sign a commercial agreement with a licensed mobile operator. The terms and conditions for providing access to the network of a mobile operator by the MVNOs are stipulated in the Governmental Decree N° 57 of 21 December 2010 on special licensing conditions for the usage of radio frequencies in the provision of mobile networks and services⁵⁷.

No operator has yet made use of the available legal provisions to launch MVNO services.

4.1.5.2 RELEVANT MINISTRIES AND REGULATORY AUTHORITIES

4.1.5.2.1 MINISTRIES

Competences

The Ministry of Economy and Infrastructure⁵⁸, develops, promotes and implements the government policy on electronic communications and determines the development of its strategy. The Ministry can coordinate international activity in electronic communications and can launch a legislative initiative⁵⁹.

4.1.5.2.2 REGULATORY AUTHORITY

The National Regulatory Agency for Electronic Communications and Information Technology (ANRCETI) is the Regulator in Moldova.

Competences

The Regulator has the power to regulate electronic communications and information technology activities, ensure the implementation of development strategies and supervise the compliance of electronic communications networks and service providers with applicable laws. It complies with the applicable laws, has its own budget and operates independently of the network/service providers and the government. Its rules of procedure that define its duties and powers are based on the Electronic Communications Act of 2007, which are approved by the government⁶⁰.

The Regulator has the power to contribute to the development of the internal electronic communications market, in particular by removing obstacles to the provision of electronic communications services and networks and associated facilities. Within its competence, the Regulator can sanction operators who do not comply with their obligations as stipulated in the national legislation for electronic communications.

Appointment

ANRCETI is managed by the Administrative Board, consisting of the Chairman of the Board, or Director, and two Deputy Directors, who are all appointed by the Government⁶¹ for a period of four

⁵⁶ Governmental Decree N°57 of 21 December .2010

⁵⁷ Governmental Decree nr.57 of 21 December 2010

⁵⁸ Also called the Central Sectorial Authority in Article 7 of the Electronic Communications Act

⁵⁹ Art 7 of the Electronic Communications Act

⁶⁰ Art. 8 ibidem

⁶¹ Art. 11, Electronic Communications Act N°.241/2007

years, extendable to a maximum of eight years. They must be Moldovan citizens, have a higher education degree and an extensive experience in telecommunications ⁶².

4.1.5.3 REGULATORY CONTROLS

Price control for mobile operators that do not have Significant Market Power (SMP)

The Regulator has no authority to impose price control methods to operators that are not designated as SMP operators.

Price controls under an SMP determination

The Electronic Communications Act determines that to impose price control obligations on an operator, the Regulator must first identify relevant markets and develop market analysis regulations. Once these regulations are in place, the Regulator will conduct a market analysis where required by law and it will designate a mobile operator with SMP on a relevant market.

Wholesale price controls

All mobile operators (Moldtelecom, Orange Moldova and Moldcell) were designated as having SMP on the relevant wholesale markets for voice call termination in individual mobile telephone networks and for voice call termination in individual fixed telephone networks.

The following obligations were imposed: access, transparency, non-discrimination and price control. Only the incumbent operator (Moldtelecom) has accounting separation obligations, which were imposed due to its Significant Market Power on all the relevant markets susceptible to ex-ante regulation (wholesale and retail level).

The LRIC (Long-Run Incremental Cost) model is used for mobile termination rates and fixed termination rates.

As a consequence of their designation as SMP providers, all mobile operators must submit to the Regulator their Reference Interconnection Offers ⁶³, where wholesale tariffs are included. Mobile operators do not need an approval from the Regulator for the tariffs on wholesale services, because the maximum prices that they can apply for these services are set in the Regulator's Decisions on special obligations imposition (the LRIC model is used).

Mobile SMP operators must publish on their websites their Reference Interconnection Offer, where wholesale tariffs are included.

Retail price controls

No retail price control obligations for mobile operators are set by the law.

File tariff approvals or requests

Retail tariff approvals are not required.

Price or tariff publication obligations

⁶² Art. 18, Governmental Decree N° 905 of 28.July 2008, Regulations of the National Regulatory Agency for Electronic Communication and Information Technology

⁶³ ANRCETI on Access and Interconnection at <http://en.anrceti.md/node/92>

Mobile operators are required to provide the public with detailed, clear and up-to-date information on applicable prices and tariffs, as well as other terms and conditions for the provision and use of their services, at least by one of the following means: printed version or upon request by email, on their websites, or through their customer care service. Mobile operators are also required to inform their customers of any change to their price lists, tariff plans or other contractual provisions at least one month before their entering into force.

4.1.5.4 MAIN FEATURES OF THE LEGISLATIVE FRAMEWORK

4.1.5.4.1 NECESSARY PREREQUISITES TO DELIVER AN EFFICIENT REGULATORY ROAMING POLICY

A new law approved by the Parliament will be necessary to empower the Regulator or the Ministry to impose a reduction in roaming tariffs.

4.1.5.4.2 STEPS REQUIRED FOR THE APPLICATION IN DOMESTIC LAW OF A REGIONAL ROAMING AGREEMENT

Once the RRA is signed it will need to be ratified by the Parliament.

4.1.5.5 MAJOR PARTICULARITIES IN POLICY APPROACH

Moldova is one of the four EaP Countries, with Armenia, Georgia and Ukraine, which have already in place a regulatory framework similar to that of the EU. It has adopted the SMP regulations and has an independent regulator. However, neither the Ministry nor the Regulator have competence to reduce roaming tariffs, which would require the promulgation of a law.

Also, Moldova is the only EaP country that authorises the provision of mobile services through MVNOs.

4.1.5.6 MAJOR GAPS COMPARED TO THE EU.

No roaming regulation principles have been adopted in Moldova.

4.1.5.7 FREE TRADE AGREEMENTS

Legal consequences of the RRA in relation to the DCFTAs agreement

International roaming is not included in the DCFTA agreement between the EU and Moldova, so the RRA will have no impact on the DCFTA agreement.

Legal consequences of the RRA in relation to the WTO

Moldova is a Member of the WTO since July 26, 2001. Commitments in telecommunications services were first made during the Uruguay Round (1986-94), mostly in value-added services. In post-Uruguay Round negotiations (1994-97), WTO members negotiated on basic telecommunications services⁶⁴. Since then, commitments have been made by new members, upon accession to the

⁶⁴ WTO, Uruguay Round Ministerial decision on negotiations on basic telecommunications, adopted on 15 April 1994

WTO, or unilaterally at any time. In the General Agreement on Trade in Services (GATS), which consists of a common body of framework articles and annexes, including one on telecommunications and individual schedules containing each member's level of commitments⁶⁵, Moldova committed to a number of communications services⁶⁶. As far as mobile services are concerned, only mobile voice and data services⁶⁷ are mentioned. Thus, international roaming is not in the list of services that Moldova committed to and is not part of the GATS list of telecommunications services. The RRA will not have an impact on the WTO. Further considerations on WTO that apply to all EaP Countries are in Box 1 at the end of Section 4.1.

Moldova has signed an FTA agreement on services through the Organisation for Democracy and Economic Development (GUAM) with Armenia, Georgia and Ukraine, which does not apply to telecommunications.

Moldova has signed a Free Trade Area agreement with CIS. Both agreements are referred to in Box 1 at the end of Section 4.1.

4.1.5.8 CAPACITY BUILDING

The Regulator undertakes its capacity building exercises in accordance with its action plan, on a yearly basis. In accordance with its needs, the Regulator applies for support on capacity building activities. Depending on the topic, certain divisions of the Regulator are involved, the number of participants varying on average from 6 to 12 members of the staff or more.

The Regulator has the necessary expertise to apply the costing methodologies, define market impact assessments and carry out consultations with the mobile operators on roaming. It will be necessary to assess whether any additional work load caused by the implementation of a new legislative framework and the ensuing tariff reductions will require additional resources.

If additional capacities are required, the suggestions provided by the EU Regulators in Section 4.3.7, should be analysed. They consider that a multi-task team, composed of lawyers, economists and engineers is necessary to address roaming tasks from different angles. The team will need to be composed of the equivalent resources of 1.7 persons per year.

4.1.6 UKRAINE

4.1.6.1 OVERVIEW OF THE APPLICABLE LEGISLATIVE, INSTITUTIONAL AND POLICY FRAMEWORK ON ROAMING

4.1.6.1.1 MAJOR LAWS/REGULATIONS APPLICABLE TO THE MOBILE TELECOMMUNICATIONS INDUSTRY

The *Telecommunications Law of 18 November 2003*⁶⁸ N°1280-IV establishes the legal framework of operation in the telecommunications field, identifies the authority of the state in regulating the sector and defines the management and the regulatory activities in the telecommunications sector

⁶⁵ WTO, International mobile roaming possible implications for GATS, Note by the Secretariat, S/C/W/337, 13 July 2011

⁶⁶ WTO, Moldova, Schedule of Specific Commitments, GATS/SC/134, 21 December 2001

⁶⁷ CPC 75213 (Central Product Classification)

⁶⁸ See the 4 June 2017 redaction of Law of Ukraine On Telecommunications N° 1280-IV of 18 November 2003

as well as the rights, responsibilities and basic liabilities of individuals and legal entities who participate in these activities or use telecommunications services.

A *Cabinet of Ministers' Order of 7 June 2006 N. 316-p*⁶⁹ on the Approval of the Development of Telecommunications defined the basic principles and directions for the development of telecommunications networks.

A *NCCR Decision of 26 January 2006 N° 179*⁷⁰ on the Approval of Licensing Conditions for Mobile Telephony Services, detailed licensing conditions for the implementation of activities in the field of telecommunications.

A *NCCR Decision of 2 April 2009 N°1438*⁷¹ on the Approval of the Procedure for public telecommunication services' tariffs determines the procedure to define and apply tariffs for public telecommunications services.

A *NCCR Decision of 11 November 2010 N°513*⁷² on the Approval of Licensing for Telecommunications activities, detailed the provision of maintenance services and operation of telecommunication networks, terrestrial television and radio broadcasting networks, cable radio and television networks.

A *NCCIR Decision of 8 November 2016, N°589*⁷³ on the Approval of Tariff Caps, relates to tariff caps for public telecommunication services.

A *Cabinet of Ministers' Resolution of 11 April 2012 N°295*⁷⁴ on the Approval of the Rules for the provision of telecommunications services, regulates the relations between operators, telecommunications providers and consumers.

A *NCCIR Decision of 30 August 2016 N°456*⁷⁵ on the approval of fee cap settlements for telecommunication operators with Significant Market Power relates, among other things, to fee cap settlements for transfer of incoming international voice telephony traffic to telecommunication networks of telecommunication operators with Significant Market Power.

The *Law on Access to Infrastructure of 7 February 2017 N° 1834-VIII*⁷⁶ on Access to Facilities for the Development of Telecommunications Networks, defines the terms and conditions for the access

⁶⁹ See the 27 December 2008 redaction of the 7 June 2006, Cabinet of Ministers' Order N° 316-p on the Approval of the concept of development of telecommunications in Ukraine

⁷⁰ Decision 179 - registered with the Ministry of Justice on 17 February 2006, N° 145/12019 on the Approval of the Licensing conditions for the implementation of activities in the field of telecommunications regarding the provision of mobile telephony services with the right to conduct technical maintenance of telecommunication networks and lease local, national, international communication channels

⁷¹ Decision N°1438 registered with the Ministry of Justice on 22 April 2009, №363/16379 on the Approval of the Procedure for public telecommunication services' tariffs

⁷² Decision 513 - registered with the Ministry of Justice on 30 November 2010, № 1200/18495 on the Approval of Licensing conditions for the implementation of activities in the field of telecommunications

⁷³ Decision N°589 - registered with the Ministry of Justice on 16 November 2016, №1488/29618 on tariff caps approval for public telecommunication services

⁷⁴ See the 12 July 2017 redaction of the 11 April 2012, Cabinet of Ministers' Resolution N. 295 on the Approval of the Rules for the provision and receipt of telecommunications services

⁷⁵ Decision N°456, registered with the Ministry of Justice on 22 September 2016, № 1281/29411 on the approval of fee cap settlements for traffic transfer to telecommunication networks of telecommunication operators with Significant Market Power in the markets of traffic transfer services and fee cap settlements for transfer of incoming international voice telephony traffic to telecommunication networks of telecommunication operators with Significant Market Power in the markets of traffic transfer services

⁷⁶ Law of 7 February 2017 N° 1834-VIII about access to construction objects, transport, power industry for the purpose of development of telecommunication networks

to construction, transport and electricity facilities for the development of telecommunications networks.

4.1.6.1.2 LAWS/REGULATIONS APPLICABLE TO NATIONAL AND INTERNATIONAL ROAMING

The law makes it mandatory for Ukrainian telecommunications operators to offer national roaming services to their users⁷⁷, subject to the conclusion of written agreements between the operators. The law mandates the Regulator to define the procedure for the provision of national roaming services⁷⁸. Such procedure was promulgated on August 25, 2011⁷⁹. As a result, all major operators currently provide national roaming services.

On CIS agreements that relate to international roaming see Box 1 at the end of Section 4.1.

Ukraine, as a Member of the International Telecommunication Union (ITU) adheres to its International Telecommunication Regulations, which refer *inter alia* to international roaming. The Telecommunications Law⁸⁰ mandates that the recommendations of the International Telecommunication Union will apply to the international agreements between Ukraine and other countries and/or to the contracts between the Ukrainian telecommunications operators and operators from other countries. Among other things, such recommendations apply to the Ukrainian telecommunications operators' interactions with operators from other countries, to the distribution of revenues from international communications services, and to the interconnection of public telecommunications.

For further information see Box 2 at the end of Section 4.1.

Regulation of MVNOs

The legislative framework does not envisage the introduction of MVNOs.

4.1.6.2 RELEVANT MINISTRIES AND REGULATORY AUTHORITIES

4.1.6.2.1 MINISTRIES

There are no Ministries involved in telecommunications in Ukraine. However, the State Service for Special Communications and Information Protection of Ukraine develops proposals on state policy in telecommunications and implements them within the limits of its powers; it develops draft laws and other normative legal acts; identifies the requirements for the level of quality of telecommunication services; it implements the technical policy in the field of provision of telecommunication services, standardization, confirmation of conformity of technical means of telecommunications; it organizes and is responsible for developing standards in the field of telecommunications⁸¹.

⁷⁷ Article 39, Part 6, Telecommunications Law

⁷⁸ Article 18, Part 1, Par 5-1, Telecommunications Law

⁷⁹ Decision N°429 - registered with the Ministry of Justice on 13 September 2011, N° 1077/19815

⁸⁰ Article 74, Telecommunications Law

⁸¹ Article 15, Telecommunications Law

4.1.6.2.2 REGULATORY AUTHORITY

The Ukrainian Regulator is the National Commission for State Regulation of Communications and Informatisation (NCCIR), which is responsible for regulation and supervision of telecommunications. This includes managing authorisations and licenses for the provision of telecommunications services and networks⁸². The Regulator has the same powers for the sectors of informatisation, radio frequency resources and postal services.

Appointment

The NCCIR acts as a collegial body composed of the Chairperson and six members, appointed and dismissed by the President of Ukraine by a Presidential Decree⁸³.

Independence

The NCCIR is subordinated to the President of Ukraine and accountable to the Parliament.

Limitations

In carrying out its activities, the Regulator seeks the approval of other government bodies for some of its decisions.

- An approval of the State Regulatory Service of Ukraine is necessary for NCCIR regulatory acts to be issued, except those involving the establishment of tariffs.
- An approval of the Antimonopoly Committee of Ukraine is also required for regulatory acts that may affect competition⁸⁴.
- Finally, certain decisions are subject to the approval by the Administration of the State Service for Special Communications and Information Protection of Ukraine.

All regulatory acts of the NCCIR are registered with the Ministry of Justice of Ukraine.

The legislation in force, gives the Regulator no authority to regulate or reduce tariffs for roaming services.

4.1.6.3 **REGULATORY CONTROLS**

Price control for mobile operators that do not have Significant Market Power (SMP)

By law, the Regulator cannot control prices outside of SMP regulation. Exceptions to the rule relate to the control of fees for traffic terminating on the telecommunications networks of SMP operators. This was the case when the Regulator approved in 2016 the settlement fee caps and termination rates for the transfer of incoming international voice telephony traffic to the telecommunication networks of SMP operators in the markets of traffic transfer services⁸⁵.

Price controls under an SMP determination

⁸² Article 17 Telecommunications Law

⁸³ Art 20, Part 1, Telecommunications Law

⁸⁴ In particular regarding the establishment of business entities, the establishment and modification of their market rules of conduct or that lead to the prevention, elimination, restriction or distortion of competition in the relevant markets

⁸⁵ Decision 30 September .2016 N° 456 registered with the Ministry of Justice on 22 September 2016, № 1281/29411

Whilst the Antimonopoly Committee determines which operators have a dominant position in the telecommunications markets i.e. at and above 35 per cent of market share ⁸⁶, the Regulator only performs an analysis of call terminations markets (on fixed and mobile networks and transit traffic on fixed networks) and identifies SMP telecommunications operators, based on its self-defined procedure ⁸⁷.

When the Regulator has identified an operator as having Significant Market Power, the obligations imposed by the law are applied to the operator from the date defined by the Regulator's decision⁸⁸.

Wholesale price controls (and services)

The Regulator establishes only the termination rates for traffic transfer.

Telecommunications operators have legal requirements to comply with, such as those established for telecommunications networks, must provide to the Regulator information on interconnection and interconnection offers, have to ensure interconnection and carry out settlement payments ⁸⁹.

Retail price controls

As mentioned, the Telecommunications Law establishes the principle of tariff caps or fixed tariffs for settlement fees for call termination and traffic transit. At retail level, the Regulator approves the settlement of fee caps only for universal services ⁹⁰.

File tariff approvals or requests

The submission of tariff requests and relevant approvals are not foreseen in the legislative framework, except for SMP operators and on certain telecommunications services markets.

Price or tariff publication obligations

Telecommunications operators must publish their services tariffs no later than seven calendar days before their introduction ⁹¹.

Tariffs consumer awareness obligations

There is no specific obligation to raise the consumer's awareness on tariffs.

4.1.6.4 MAIN FEATURES OF THE LEGISLATIVE FRAMEWORK

4.1.6.4.1 NECESSARY PREREQUISITES TO DELIVER AN EFFICIENT REGULATORY ROAMING POLICY

The current Telecommunications Law would have to be amended by the Parliament in order to equip the Regulator with the necessary powers to reduce roaming tariffs and to monitor their implementation by the telecommunications operators.

⁸⁶ Article 37, Part 4, Telecommunications Law

⁸⁷ Article 18, Part 1, par 10-1, Telecommunications Law

⁸⁸ Par 8.2, Procedure for the Traffic Transfer Services' Market Analysis and Definition of Telecommunication Operators with Significant Market Power", 25 August 2011 NCCIR Decision № 444 registered with the Ministry of Justice on 13 September.2011,№ 1078/19816

⁸⁹ Article 58, Telecommunications Law

⁹⁰ Article 66, Part 2, par 3, Telecommunications Law

⁹¹ Article 39, Part 2, par 14, Telecommunications Law

4.1.6.4.2 STEPS REQUIRED FOR THE APPLICATION IN DOMESTIC LAW OF AN INTERNATIONAL ROAMING AGREEMENT

Once the RRA is signed by the President of Ukraine and/or by the Cabinet of Ministers according to their respective competence, it should be ratified by the Parliament. The signature of the RRA can be delegated to a state body including NCCIR.

4.1.6.5 MAJOR PARTICULARITIES IN POLICY APPROACH

Ukraine is one of the four EaP Countries, with Armenia, Georgia and Moldova, which have in place a regulatory framework similar to that of the EU. Ukraine has adopted the SMP regulations and has an independent regulator. The State Service for Special Communications and Information Protection of Ukraine plays a major role in ensuring the security of telecommunications. The Regulator is under the direct authority of the President of Ukraine and is accountable to the Parliament. In addition, Ukraine is the only EaP country where national roaming is enabled by the law and is operational.

4.1.6.6 MAJOR GAPS COMPARED TO THE EU.

Except for the national roaming provisions, no other roaming regulations have been adopted in Ukraine.

4.1.6.7 FREE TRADE AGREEMENTS

Legal consequences of roaming regulation in relation to the DCFTA agreement

International roaming is not included in the DCFTA agreement between the EU and Ukraine, so the roaming regulation will have no impact on the DCFTA agreement.

Legal consequences of the roaming regulation on the WTO obligations and commitments

Ukraine is a Member of the WTO since May 16, 2008. Commitments in telecommunications services were first made during the Uruguay Round (1986-94), mostly in value-added services. In post-Uruguay Round negotiations (1994-97), WTO members negotiated on basic telecommunications services⁹². Since then, commitments have been made by new members, upon accession to the WTO, or unilaterally at any time. In the General Agreement on Trade in Services (GATS), which consists of a common body of framework articles and annexes, including one on telecommunications and individual schedules containing each member's level of commitments⁹³, Ukraine committed to a number of communications services⁹⁴. As far as mobile services are concerned, only mobile voice and data services⁹⁵ are mentioned. Thus, international roaming is not in the list of services that Ukraine committed to and is not part of the GATS list of telecommunications services. Further considerations on WTO that apply to all EaP Countries are in Box 1 at the end of Section 4.1.

⁹² WTO, Uruguay Round Ministerial decision on negotiations on basic telecommunications, adopted on 15 April 1994

⁹³ WTO, International mobile roaming possible implications for GATS, Note by the Secretariat, S/C/W/337, 13 July 2011

⁹⁴ WTO, Ukraine, Schedule of Specific Commitments, GATS/SC/144, 10 March 2008

⁹⁵ CPC 75213 (Central Product Classification)

Ukraine has signed an FTA on services through the Organisation for Democracy and Economic Development (GUAM) with Armenia, Georgia and Moldova, which does not apply to telecommunications.

Ukraine has signed an FTA with Montenegro, which in its Annex 5 covers Telecommunications Services but it refers mainly to interconnection that appears to relate to fixed telecommunications.

Ukraine has also signed a Free Trade Agreement and Economic Integration Agreement on goods and services with EFTA on 24 June 2010. The other signatories are: Iceland, Liechtenstein, Norway and Switzerland. The agreement covers telecommunications services and its Annex X describes the obligations of the signatories but does not cover roaming.

On WTO for all EaP Countries and Free Trade Agreements with CIS see Box 1 at the end of Section 4.1.

4.1.6.8 CAPACITY BUILDING

The Regulator has built a vast experience in regulating mobile operators under SMP determination and even in some exceptional cases outside of SMP, it should therefore not require special training for imposing roaming tariff reductions. However additional resources will be required.

It is recommended to adopt the capacity building suggestions provided by the EU Regulators in Section 4.3.7, who consider that a multi-task team, composed of lawyers, economists and engineers is necessary to address roaming tasks from different angles. The team will need to be composed of the equivalent resources of 1.7 people. In addition, a specialised training programme should be implemented on telecommunications and on roaming.

BOX 1

CIS AGREEMENTS - DECISIONS ON ROAMING WTO - MOST FAVOURED NATION

17 January 1997 - Treaty on cooperation among the CIS countries in the development and use of cellular mobile communications systems and the development of mechanisms and accounting systems.

The Treaty was signed at the meeting of the CIS Heads of Government Council in Moscow and includes a section on international roaming and frequency coordination based on international recommendations. Clause 3 of the Treaty provides that: The Parties express readiness to develop accounting and payment mechanisms and systems for international roaming in accordance with international recommendations; to concertedly carry out the conversion of radio frequency spectrum with the purpose of frequency band allocation for further development of cellular-mobile communication systems.

Signatories: Azerbaijan, Armenia, Belarus, Kazakhstan, Kirghizstan, Moldova, Russia, Tajikistan, Ukraine

19 November 2010 - Decision of the Council of CIS Heads of Government, which refers to competition in the telecommunications markets of the CIS Commonwealth

The Decision recommends prohibiting the introduction of "blocking" measures that restrict the access of foreign operators to the services of resident operators, including in the form of differentiated inter-operator tariffs. The Decision also stipulates that an investigation should be conducted on the termination conditions applied to foreign operators' network. Finally, in order to protect users' rights while roaming, it recommends that the anti-monopoly authorities of the CIS member states investigate and jointly regulate communications services by analysing how operators could reduce inter-operator tariffs.

Signatories: Armenia, Belarus, Ukraine, Moldova, Azerbaijan, Tajikistan, Kazakhstan, Kyrgyzstan and Russia

30 October 2015 - Framework Agreement on Inter-operator Settlements in the CIS countries

The Agreement recommends principles for the adoption of inter-operator settlement tariffs in the CIS countries. Its purpose is to create favourable conditions for the implementation of inter-operator settlement in the provision of international telecommunications services, including international roaming, in order to create new opportunities for expanding such services and improve their quality and accessibility. The Agreement recommends the adoption of measures to ensure that the CIS countries' telecommunications operators do not apply among themselves discriminatory conditions in their international inter-operator settlements.

Signatories: Belarus, Armenia, Tajikistan, Kazakhstan, Kyrgyzstan and Russia

It should be noted that the CIS agreements that relate to roaming are mainly of a cooperative nature and provide recommendations to its signatories, whilst the EU roaming principles are mandatory for EU Members and enforceable by the national regulator.

OTHER AGREEMENTS

Treaty on a Free Trade Area between CIS members.

This Treaty which was signed on 18 October 2011, covers goods.

Signatories: Armenia; Belarus; Kazakhstan; Kyrgyz Republic; Moldova, Republic of; Russian Federation; Tajikistan; Ukraine.

Eurasian Economic Union (EAEU)

This agreement which was signed on 29 May 2014 is a Customs Union and Economic Integration Agreement.

Signatories: Armenia; Belarus; Kazakhstan; Russian Federation

WTO - Most Favoured Nation (MFN)

The MFN principle means, in essence, that countries should not discriminate among the services and services suppliers of other members, so that any country granting more favourable conditions to another country should extend this more favourable treatment to third countries. The MFN principle may be waived in some cases, such as the existence of a Free Trade Agreement (FTA) between two countries with sufficient coverage. Some have stated that the MFN principle would not allow for any bi-or multi-lateral agreement on international mobile roaming services. The OECD considers however that the WTO contains sufficient instruments, such as the FTA exception, which provide for the possibility of establishing international mobile roaming agreements

OECD (2013), "International Mobile Roaming Agreements", OECD Digital Economy Papers, No. 223, OECD Publishing, Paris.

BOX 2

ITU AND INTERNATIONAL ROAMING REGULATION

All EaP Countries are State Members of the International Telecommunication Union. They have therefore adopted the Constitution and the Convention of the ITU as well as its International Telecommunications Regulations . The ITU has been a part of the general movement towards a re-modulation of international roaming tariffs, with a view to fostering economic development in the digital age. Accordingly, the ITU Regulations “are established with a view to facilitating global interconnection and interoperability of telecommunication facilities and to promoting the harmonious development and efficient operation of technical facilities, as well as the efficiency, usefulness and availability to the public of international telecommunication services.” (Article 1.3)

In particular, the Regulations specifically address, inter alia, international roaming.

Although the ITU text explicitly acknowledge that within the Regulations’ framework “the provision and operation of international telecommunication services in each relation is pursuant to mutual agreement between authorized operating agencies.” (ibidem, Article 1.5) in Article 4.7 the Regulations state that “Member States shall endeavour to promote competition in the provision of international roaming services and are encouraged to develop policies that foster competitive roaming prices for the benefit of end users.”

In this light, it is to be noted that a number of EaP operators also participate to the ITU as Sector Members. These include Armenia’s ArmenTel, Azerbaijan’s Azerfon, Georgia’s Silknet and Moldova’s Moldtelecom.

4.2 ANALYSIS OF THE EXISTING MARKET DATA PERTAINING TO THE APPLICATION OF ROAMING POLICIES AND KEY DEVELOPMENTS IN THE EAP REGIONAL ROAMING MARKET

This section examines the relevant quantitative data for Armenia, Azerbaijan, Belarus, Georgia, Moldova and Ukraine, including regional flows of travellers and roaming customers, in order to describe the situation of the telecommunications markets. The section reports on the industry players, summarises their financial and roaming Key Performance Indicators (KPIs), compares local with roaming services in terms of traffic and price as well as the different roaming tariffs charged within the EaP region. It also outlines the regional roaming costs with a view at the basis of the high prices charged. Please note that throughout this section, Armenia/Azerbaijan mutual traffic is not analysed, due to the unavailability of significant recent data.

4.2.1 ANALYSIS OF TRAVELLING PATTERNS BASED ON PUBLIC DATA

The EaP Countries fall into two clusters separated by the Black Sea and the North Caucasus and Volga regions in Russia.

Figure 1. Geographical locations of the EaP Countries



Source: Study Team

The data collected by the Study's national experts show that the total number of travellers from EaP Countries (the EaP travellers) that visited another partner country was almost 13 million in 2016 (see Table 1). It is worth noting that in order to remain consistent, data on incoming travellers, instead of outgoing, were used when performing the analysis. For example, the number of Ukrainian travellers going to Belarus is based on Belarusian statistical agency data. Similarly, the number of Belarusians coming to Ukraine is based on Ukrainian statistical agency data. Moreover, the table reports the number of visits rather than unique travellers. If one-person travels to a foreign country multiple times, multiple visits would be recorded, and as a result the total number of visits can be higher than the total population. For example, there were 4.6 million visits from Moldova to other EaP Countries, which is a higher number than the entire Moldovan population (3.5 million). However, the number of visits is the closest proxy showing how many people are travelling within the EaP region and who might be affected by reduced roaming rates. The data regarding the number of unique users and the nights spent in each visit would have been useful for study purposes. However, none of the EaP Countries statistical departments were able to provide such information.

Table 1. Number of visits (thousands) by EaP citizens in 2016

		TO						
FROM		BY	UA	MD	GE	AZ	AM	Total
	BY		1,822	13.9	37.1	12.3	7.4	1,893
	UA	1,192		974.4	174.9	55.5	28.5	2,425
	MD	255.4	4,296		9.3	3.7	0.5	4,565
	GE	15.3	48.4	2.0		506.3	326.4	898
	AZ	18.4	105.6	2.7	1,524			1,650
	AM	10.8	35.3	1.9	1,497			1,544
	Total	1,492	6,308	995	3,241	578	363	12,977

Source: Data from EaP statistical agencies

1.5 million visits were recorded in Belarus from other EaP Countries in 2016. Most visits came from Ukraine (80%) and Moldova (17%). Ukraine received 6.3 million EaP visits; most of them from Moldova (68%) and Belarus (29%). Almost 1 million visits came to Moldova, the clear majority (98%) coming from Ukraine. Georgia received 3.2 million visits, the majority from Azerbaijan (47%) and Armenia (46%). Azerbaijan received 0.6 million visits, most of them coming from Georgia (88%). Armenia received 0.4 million visits, the majority from Georgia (89%)

Table 2. Proportional structure of visits in EaP region in 2016

		TO					
FROM		BY	UA	MD	GE	AZ	AM
	BY		29%	1%	1%	2%	2%
	UA	80%		98%	5%	10%	8%
	MD	17%	68%		0%	1%	0%
	GE	1%	1%	0%		88%	89%
	AZ	1%	2%	0%	47%		
	AM	1%	1%	0%	46%		
	Total	100%	100%	100%	100%	100%	100%

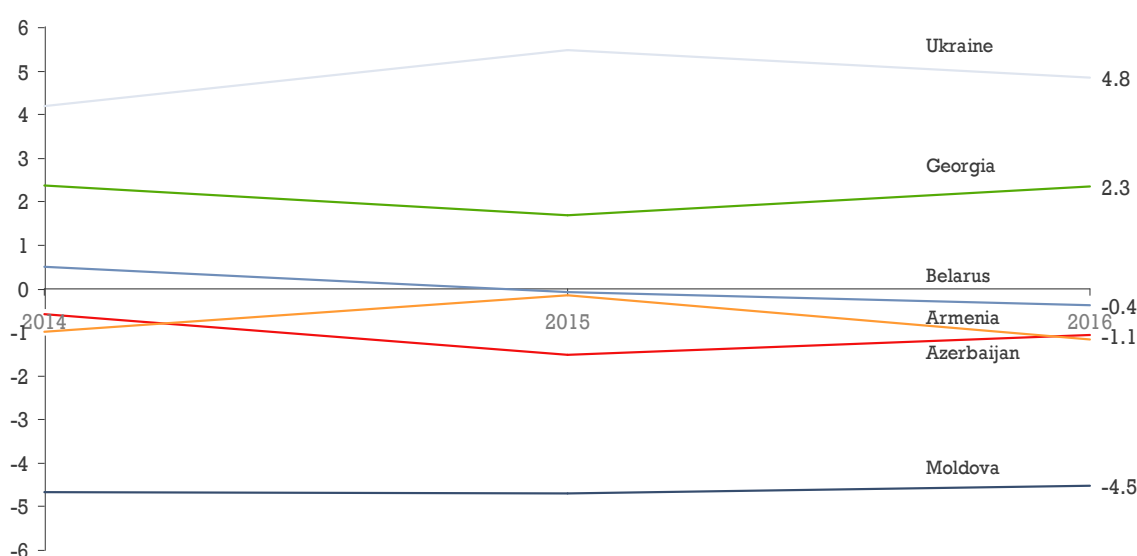
Source: Data from EaP statistical agencies

As we can see from the table above (Table 2), travelling patterns correlate with regional proximity. Two sub-regional clusters exist: Belarus, Ukraine and Moldova on one side and Georgia, Azerbaijan and Armenia on the other side.

A travelling customer who uses roaming services is charged by his or her provider at home, which has to contract and purchase a connection to the respective local mobile network of that foreign operator.

It is also important to analyse net visit flows because it gives a sense which countries might benefit most from reduced roaming tariffs. To grasp the dynamics in net flows of visits over time, the data from the three consecutive years (2014, 2015 and 2016) was illustrated graphically below.

Figure 2. Net flows of the EaP visits in millions from 2014 to 2016



Source: Data from EaP statistical agencies

Ukraine and Georgia were the two largest net receiving countries with nearly 4.8 and 2.3 million of net visit surpluses respectively. Moldova, on the other hand, had a large net deficit of the EaP visits fluctuating around 4.5 million throughout the three years. Armenia and Azerbaijan had a negative balance of 1.1 million visits in 2016. Belarus, had a small surplus in 2014 and a small negative balance in 2016.

It is worth stressing that customers in all countries would benefit from reduced roaming prices. Countries such as Moldova and Azerbaijan should especially benefit from lower roaming prices because their customers are traveling abroad while not that many tourists are coming and allowing local operators to earn revenue from incoming travellers.



















4.2.2 TELECOMMUNICATIONS INDUSTRY SUMMARY

The following subsections look in more detail at the EaP operators, their financial situation, particularly as related to roaming services, and the extent to which their activity could be affected by possible new regional regulations on tariff reduction.

4.2.2.1 INDUSTRY PLAYERS

Typically, in each EaP market there are three main telecommunications providers of which, two are market leaders, as a result of continued consolidations, mergers and acquisitions. In Ukraine, for instance, Kyivstar and Vodafone are the two leading operators in the market, while in Belarus MTS and Velcom essentially share the telecommunications market between them. Table 3 below shows the EaP operators as of 2017.

Table 3. List of mobile operators in the EaP Countries

	Armenia	Azerbaijan	Belarus	Georgia	Moldova	Ukraine
Telia						
MTS						
VEON						
Turkcell						
Other		 			 	

Source: Providers' websites, retrieved on Sep 2017

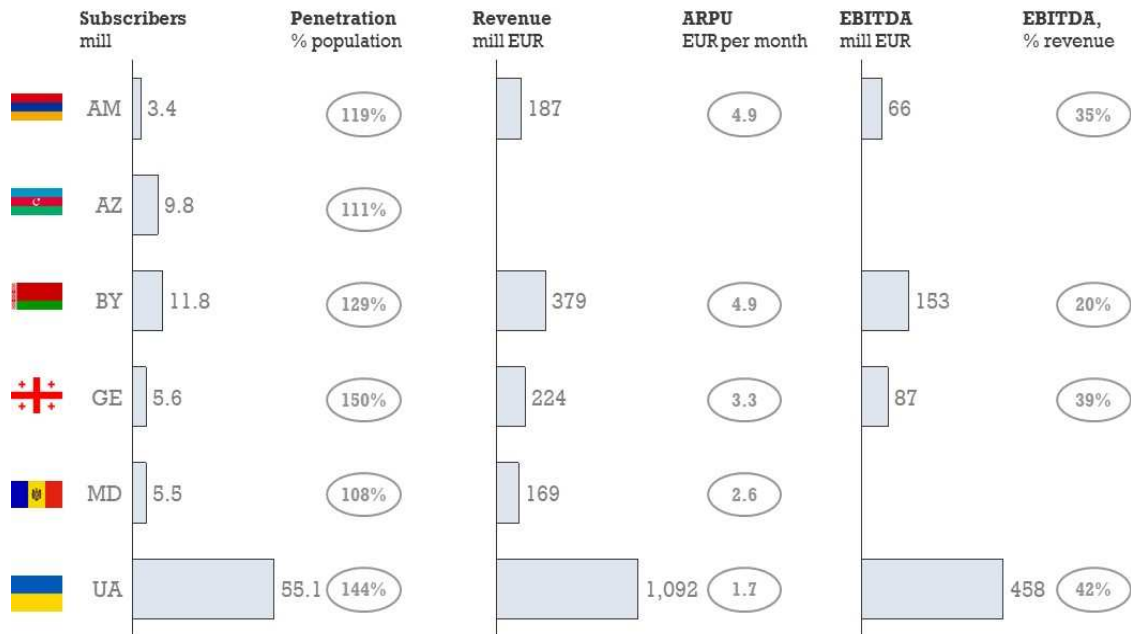
Some companies operating within the EaP belong to the same owner. For instance, Lifecell in Ukraine and Life in Belarus both have Turkcell as their parent company. Moldcell in Moldova, Azercell in Azerbaijan and Geocell in Georgia belong to Telia. Some companies such as Bakcell or Nar are relatively small and operate at the local level only, while some other companies are running their operations internationally. Orange in Moldova, for example, is a part of the multinational telecommunications company Orange S.A. based in France.

The ownership structure is very important since it could influence fees charged in the wholesale market. For example, operators in different EaP Countries belonging to the same group could, theoretically, offer each other relatively competitive wholesale prices, thereby altering fair market conditions.

4.2.2.2 FINANCIAL KPIs

To gauge the performance of the EaP telecommunications markets, basic financial and operational Key Performance Indicators are summarised below.

Figure 3. Main financial KPIs in 2016



Source: Consolidated country level data provided by the operators

In 2016, Ukraine was the largest market, with more than 1 billion EUR of revenue accrued to its operators and 55 million subscribers – more than half of the EaP markets combined. Belarus is the second largest market with nearly 380 million EUR annual revenue and almost 12 million subscribers. Moldova is the smallest market in terms of revenue (169 million EUR) while Armenia is the smallest market in terms of customers (3.4 million subscribers). Subscriber penetration rates in all countries are over 100%, the highest being in Georgia reaching 150%.

4.2.2.3 Earnings Before Interest, Tax, Depreciation and Amortization (EBITDA)

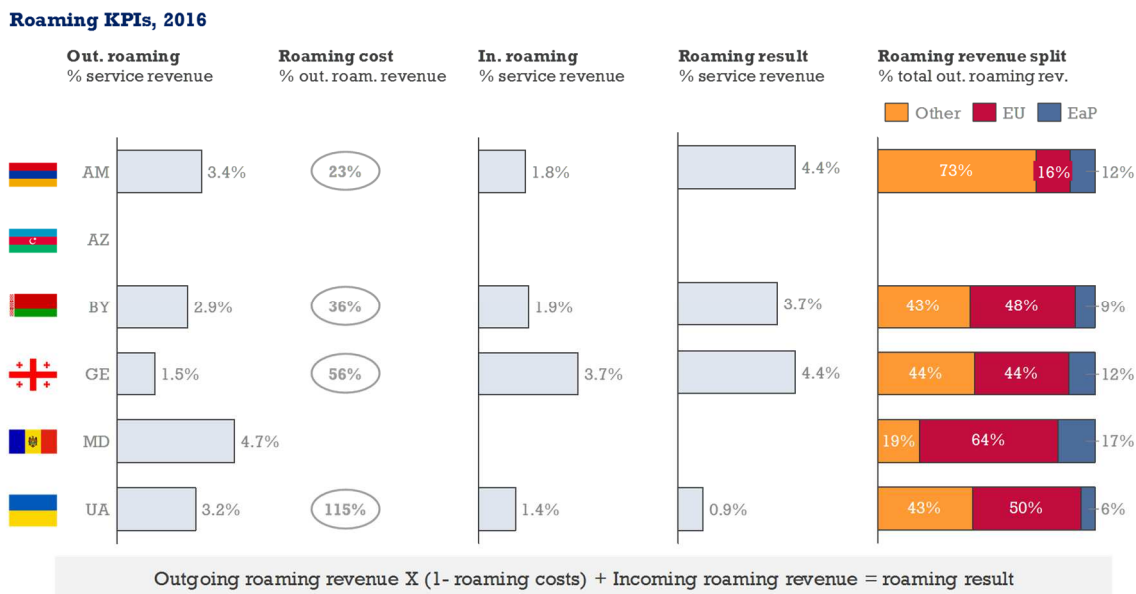
The EBITDA margin allows assessing financial health of the markets. All EaP countries have positive EBITDA margins. 40% EBITDA margin is considered a very good measure in the telecommunications industry table. Only Belarus has a relatively lower but still positive EBITDA margin of 20%.

4.2.2.4 ROAMING KPIs

Figure 4 below summarises the most important indicators related to roaming services. Outgoing roaming revenue comprises 3-4% of total operators' revenue. The largest KPI is in Moldova (almost

5%) and the smallest is in Georgia (about 2%). Outgoing roaming revenue measures how much operators are earning from their own customers when they travel abroad. Operators need to pay wholesale costs to foreign network providers for roaming services. In Armenia wholesale costs were 23% of total outgoing revenue earned in 2016, while in Ukraine they were 115% according to the data provided to the Study Team. It is also important to consider the incoming roaming revenue, which shows how much operators earn from incoming travellers who use their network. The Incoming roaming KPI is highest in Georgia (3.7% of total revenue) and lowest in Ukraine (1.4%).

Figure 4. Main roaming KPIs



Source: Consolidated country level data provided by the operators

When we analyse the structure of roaming revenue, it is important to note that roaming among EaP Countries constitutes around 10% of total roaming revenue, EU roaming is around 50% of total revenue, while the rest of the world counts for 40% of total roaming revenue. There are two important conclusions from this information. First, if EaP roaming prices are reduced, this will have only a minor financial impact for EaP mobile operators. EaP roaming revenue represents less than 0.5% of the total mobile operators' revenue. Secondly, for customers to gain a more significant benefit from reduced roaming prices, future EaP Countries' roaming regulations need to be fully harmonised with the EU, as currently around 50% of revenue from international roaming comes from customers who travel to the EU. Roaming revenue split for Moldova is calculated based on roaming usage indicators instead of roaming revenue due to data availability.

4.2.3 LOCAL AND ROAMING SERVICES COMPARISON

To evaluate the relative roaming activity in the market, roaming voice, SMS and data services are benchmarked against the local services. The sections below present the methodology used and the underlying complexities; compare local prices with roaming prices and assess them against the corresponding traffic. The analysis includes both a cross-national comparison and more detailed comparisons at country level. Finally, the relationship between prices and traffic is assessed.

4.2.3.1 PRICE CALCULATIONS METHODOLOGY

In this Section the Study Team estimates effective roaming prices through the list prices of mobile operators. It must be highlighted that this exercise is very complex as Roaming tariffs will differ depending on several factors such as: in which country a customer travels; which operator they choose in that country, what service they use (call within a country, call back home, call to a third country); the use of special bundles with cheaper roaming prices; use of discounts for business accounts⁹⁶.

To tackle the overlapping complexities, the Study Team used the effective prices derived from operators' data. Figure 5 first summarises these complexities in pricing and then compares the listed prices (as advertised on operators' websites) with the effective prices (as derived from the operators' provided financial data).

Figure 5. Price calculations methodology



Source: Study Team

Listed prices. Throughout this study, the listed prices were the local and/or roaming prices published on the operator's website. Prices were either quoted in EUR already or converted. The listed prices

⁹⁶ Further information on how the retail prices were derived for individual services from bundles is in Annex 7

were used only when the operator's financial data were unavailable, namely for Azerbaijan and Moldova. The process of deriving the listed price for this Study is described below:

- Listed roaming price: the cheapest tariff for foreign operators available when using the roaming services provided by the leading operator in the domestic market (by number of subscribers). For example, Orange – the market leader in Moldova – charged their roaming customers either 0.35 or 0.82 EUR per MB of data in Armenia depending on the network used (Armenia's Orange or Beeline network respectively). Hence, the former price was included in this Study. To be consistent and to ensure comparability among different countries, the VAT was deducted from the listed prices.
- Listed local price: the discounted price of the leading operator in the market (by number of subscribers) without the VAT. The discounted price was derived from the price of bundled services. For example, if 1,000 SMS cost 10 EUR, then a unit price of 0.01 EUR per SMS was used (EUR 10 divided by 1,000 SMS).

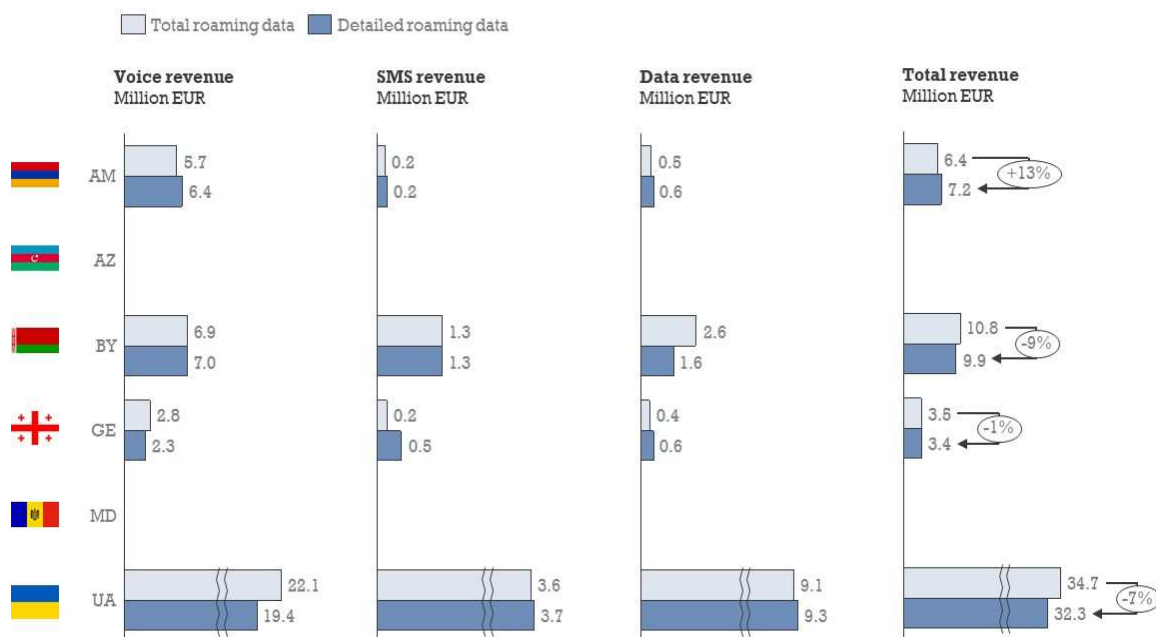
Effective prices: the effective price was derived dividing the corresponding service revenue (after tax) by the traffic. It is "effective" in sense that the real amount of money spent on every unit of service consumed was traced. Depending on which revenue data were used, there were three types of effective prices. The revenues not directly attributed to any of the services (usually associated with other bundled services) were added proportionally to each type of effective price described below:

- Total effective roaming price (or simply "the total roaming price") refers to the total roaming revenue in the market divided by the total traffic. Consequently, the roaming destinations were not limited to the EaP Countries.
- EaP effective roaming price (or "EaP roaming price") refers to the EaP roaming revenue (as provided by the operators) divided by the regional roaming traffic.
- Local effective price refers to the local service revenue divided by the local service traffic.

It is important to note that there were discrepancies among the data provided by the operators. The total revenue from roaming services as found in the financial statements (used to calculate the total effective prices) differ from the total revenue from roaming services calculated through the detailed roaming data by country (used for calculating the EaP effective prices). The differences vary from 1% for Georgia to 13% for Armenia. Yet, there was no general trend in such variations making impossible to discount the differences as a systematic error. For example, the total roaming services revenue as reported in the financial statements of Armenian operators is smaller than what reported in their roaming service data by EaP country. On the contrary, the results for other three countries were opposite: the total roaming service revenues reported in the financial statements were higher than the same data reported as detailed roaming data by country. Variations among different roaming services are summarized in Figure 6 below. Differences in the reported roaming traffic were even larger and could not be reconciled with the discrepancies in the revenues from roaming services. Despite the differences among the data reported, in the following section the effective prices derived from both data sources are used. However, the analysis was limited to country

comparisons based on the same data source. This ensured that data relative to roaming services revenue for a country was not compared with the same data relative to another country.

Figure 6. Provided data comparison

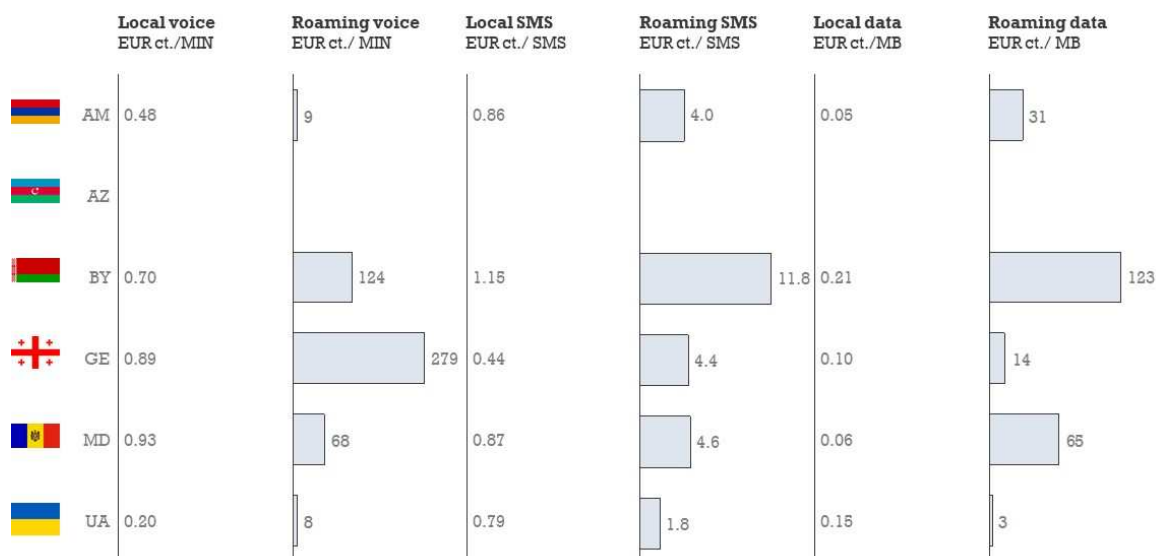


Source: Consolidated country level data provided by the operators

4.2.3.2 ROAMING AND LOCAL PRICES COMPARISON

Figure 7 below reports the effective prices – both local and total roaming prices - for different services available in the EaP Countries (definitions can be found in the methodology section above).

Figure 7. Effective prices in 2016 (roaming data are not only for the EaP Countries)



Source: Consolidated country level data provided by the operators

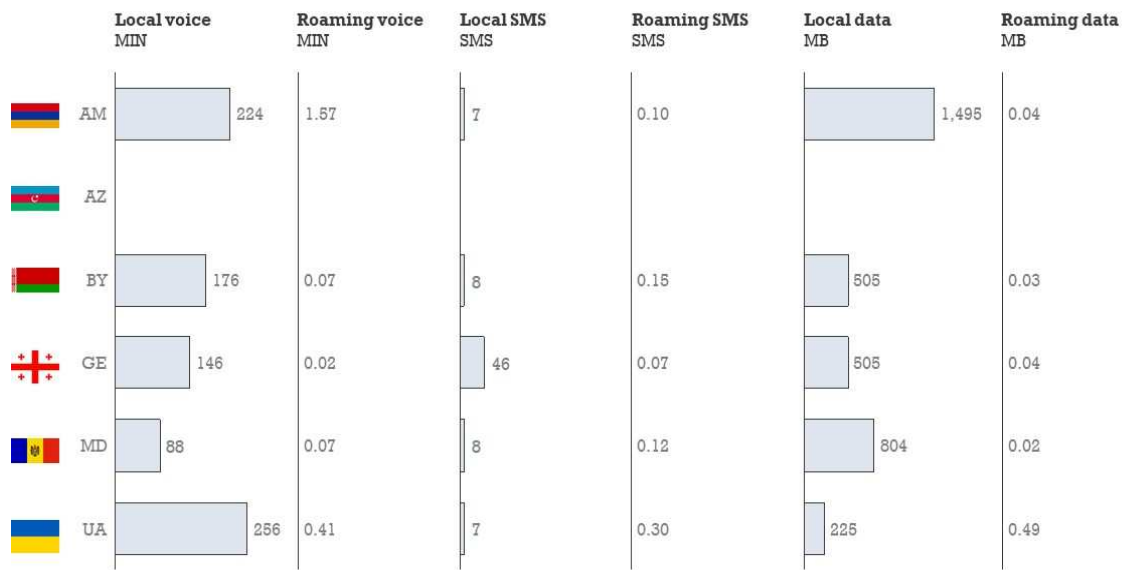
Figure 7 shows that the tariffs charged for local services were entirely dwarfed by those for roaming. The average local prices of voice, SMS and data services were lower than the average roaming tariffs by 225, 9 and 423 times respectively. Yet, the exact price differences varied cross-nationally in absolute and relative terms. The prices of local SMS were fairly even across the area (around 0.8 EUR/cents, excluding Georgia). Georgians, however, were sending local SMS at a price more than twice cheaper than elsewhere. The price range of the roaming SMS services, on the other hand, was more spread out. While Ukrainian operators offered a competitive price of 1.8 EUR/cent per SMS and Georgian and Armenian operators charged less than 4.5 EUR/cent, a roaming SMS would cost nearly 12 EUR/cent in Belarus (almost 7 times more than the EaP's cheapest).

The voice call services were cheapest in Ukraine: a local minute would be charged 0.20 EUR/cent, the roaming call would cost 8 EUR/cent. Ukrainian operators also had the most competitive data service offers at 3 EUR/cent per MB. Armenia was the second cheapest country for the mobile services with low local data prices of 0.5 EUR/cent per MB. On the other hand, Georgia had the most expensive voice services: 0.73 EUR/cent per local minute and 279 EUR/cent per roaming minute. Both were approximately twice the EaP average price. Similarly, Belarus had a much higher than the EaP average price for data roaming services. Their 123 EUR/cent charged per MB was much higher than in the other EaP Countries: fortyfold, the price in Ukraine, nine-fold that in Georgia and four times that of Armenia.

4.2.3.3 ROAMING AND LOCAL TRAFFIC COMPARISON

At the traffic level, the volume of roaming services was extremely marginal in comparison with local services for all countries and types of services. The differences in traffic were even more pronounced than for prices: average local voice and SMS traffic was larger than roaming by 387 and 109 times respectively. The disparity was particularly large for the volumes of data consumed: the total local traffic was 4,550 times bigger than the total roaming traffic (2,730 MB vs. 0.6 MB). Again, the local-to-roaming traffic ratios varied not only with the type of service but also cross-nationally. The average Georgian subscriber, for example, would send 46 local SMS per month leaving all other countries behind. The local traffic of the other EaP Countries ranged from 7 to 8 SMS per month. On the contrary, Georgia had the smallest roaming SMS traffic in both absolute and relative terms: it was more than twice below the monthly EaP Countries average and constituted just 0.15% of SMS sent locally. However, Georgians were amongst the most moderate roamers for all types of services whilst Ukrainians and Armenians generated the highest voice traffic: 256 and 224 local minutes respectively, as well as 0.41 and 1.57 roaming minutes per subscriber. Ukrainians, on the other hand, were very large consumers of roaming data services which they used 12 times more data than Georgians and Armenians and 16 times more than Belarusians. Their local data traffic, however, was not as high – on the contrary, it was the lowest in the EaP group. Armenians used comparatively large amounts of data domestically: nearly 4 times more than the EaP average.

Figure 8. Monthly traffic per subscriber in 2016 (roaming data, all countries including EaP)



Source: Consolidated country level data provided by the operators

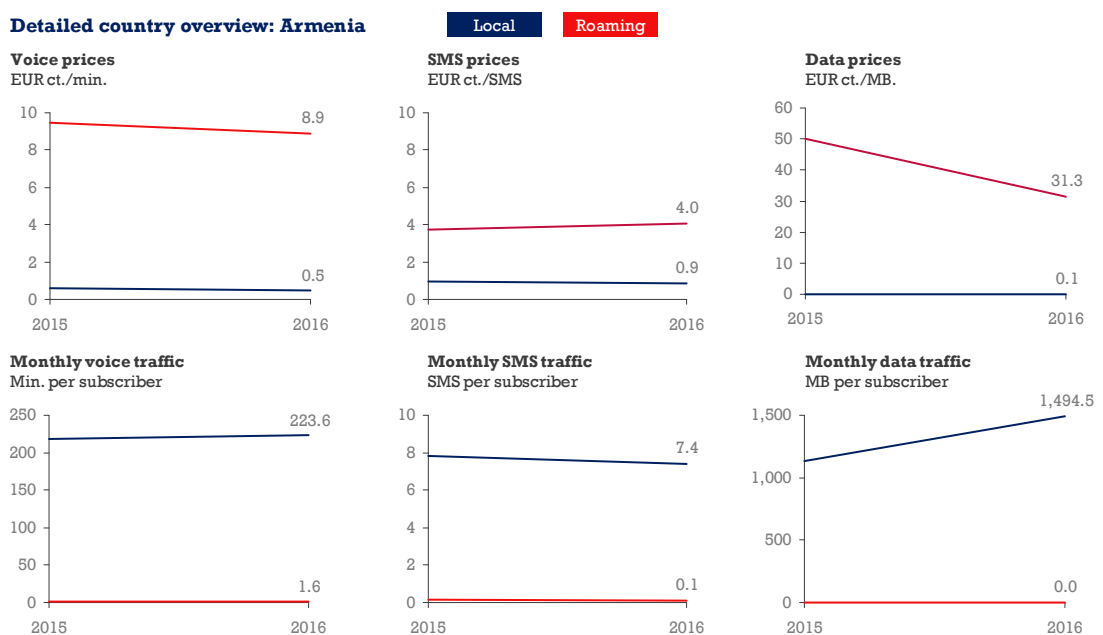
4.2.3.4 DETAILED COUNTRY OVERVIEW OF LOCAL AND ROAMING SERVICES

A more detailed look at the prices and traffic at local and roaming level focused on the time series data from 2014 to 2016 (data for Armenia being limited to 2015 and 2016 only). The analysis also excluded Azerbaijan, as the operators in the country did not provide the necessary data.

4.2.3.4.1 ARMENIA

Figure 9 shows the yearly prices charged for roaming and local services by Armenian operators. The roaming prices include all roaming destinations, thus are not limited to the EaP. The blue line shows the trend of either the local prices or local traffic, while the red line represents the changes in roaming prices and volume over time.

Figure 9. Detailed effective prices and monthly traffic overview, Armenia, 2015-2016



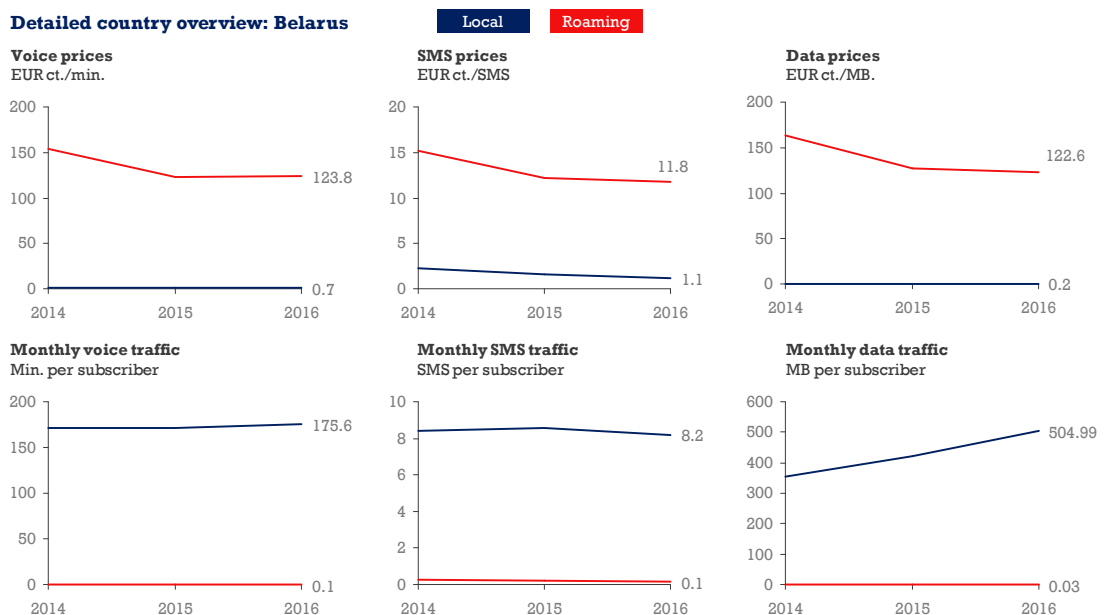
Source: Effective prices and traffic data provided by the operators

The key takeaway from the six graphs above is that the local prices are dwarfed by the amount charged for roaming, while the volume of roaming services consumed is trivial in comparison with the local traffic of the corresponding services. For Armenian mobile users, the smallest difference between the local and the roaming prices is observed for SMS services. It is to be noted that the time series in the data prices show that the roaming charges fell nearly 40% in one year even in the absence of roaming price regulations. Also, from 2015 to 2016, there was an increase of approximately 20% in the domestic data traffic that could be reflecting a general trend of growing data consumption.

4.2.3.4.2 BELARUS

Roaming prices in Belarus are at least tens of times (if not hundreds of times) higher than the prices for the corresponding local services. Although they decreased noticeably in 2015 for all types of services, they remained relatively flat afterwards. The volume graphs in Figure 10 show the opposite: the traffic of roaming services comprises only a tiny proportion of the services used domestically. As observed previously in Armenia, there also was a steady increase in the monthly local data traffic. It was complemented by a slight dip in the volume of the local SMS sent, which could indicate that consumers are switching from traditional messaging to mobile applications.

Figure 10. Detailed effective prices and monthly traffic overview, Belarus, 2014-2016

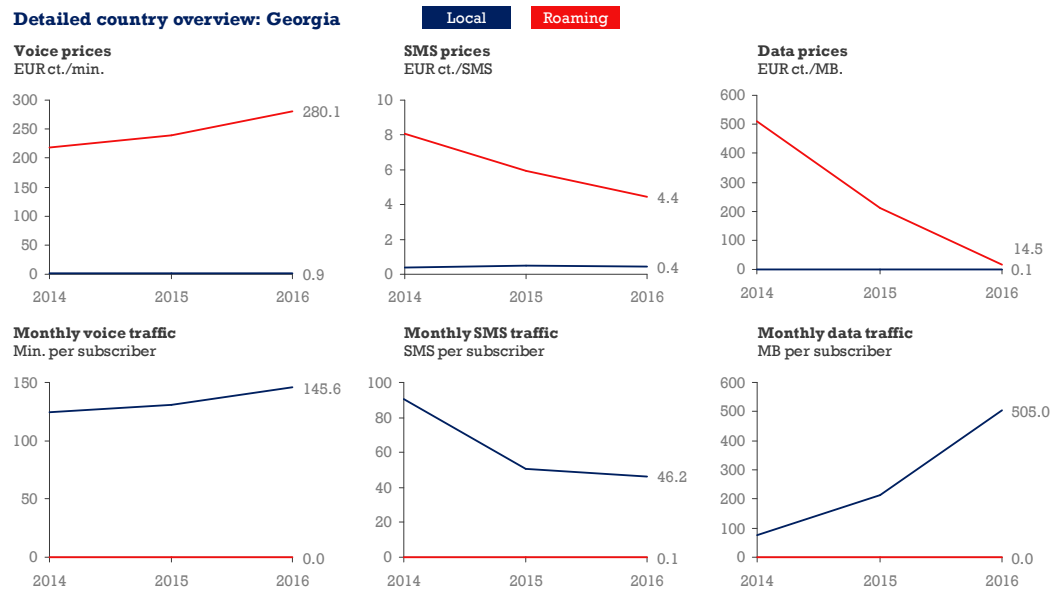


Source: Effective prices and traffic data provided by 2 operators in 2014-2015 and 3 operators in 2016

4.2.3.4.3 GEORGIA

Roaming prices charged by Georgian operators exhibited strong dynamics (see Figure 11 below). The prices of roaming calls increased over time, while the roaming prices for SMS and data services fell drastically. In 2014, the value of 1MB of roaming data was equivalent to 1GB of data used locally. Although by 2016 such price difference fell forty times, the roaming price is still significantly higher. Similar trends in local SMS and data services are observed in Georgia as well, based in changes in customer behavioural.

Figure 11. Detailed effective prices and monthly traffic overview, Georgia, 2014-2016

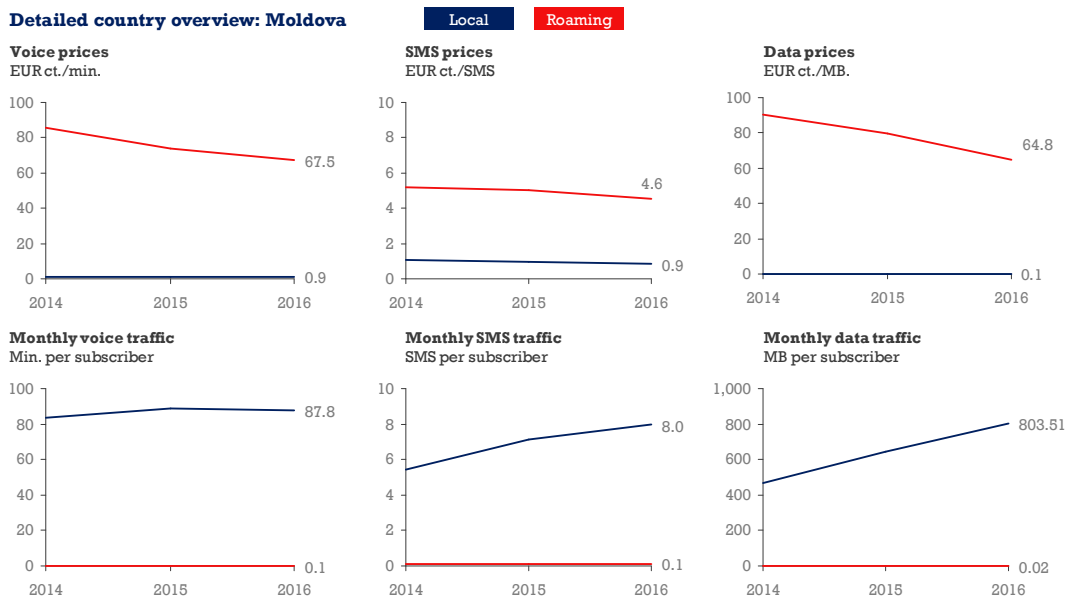


Source: Effective prices and traffic data provided by the operators

4.2.3.4.4 MOLDOVA

The prices for all roaming services decreased in Moldova, but the gap between local and roaming prices remains to be similar to other EaP countries. For example, there are differences of 72 times in the voice services, but only 5 in SMS services. However roaming traffic remains to be negligible if compared to local services traffic.

Figure 12. Detailed effective prices and monthly traffic overview, Moldova 2014-2016

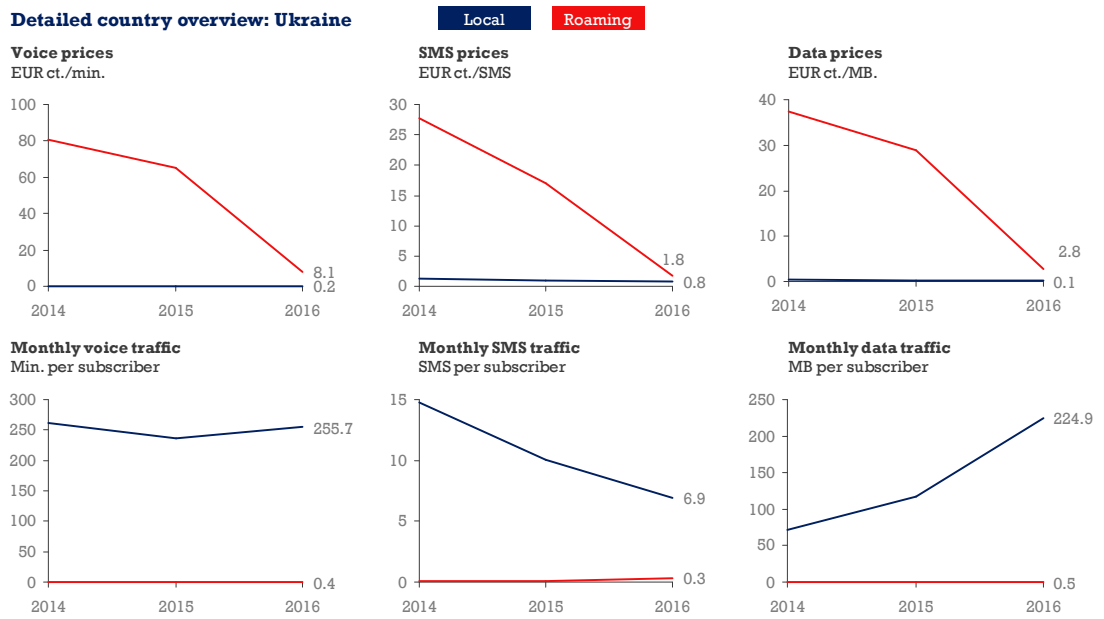


Source: Effective prices and traffic data provided by the operators

4.2.3.4.5 UKRAINE

The prices of all roaming services decreased significantly in Ukraine. Although the gap between local and roaming prices is still significant, it is comparatively narrower than in other EaP Countries: there are differences of less than 20 and 30 times in the SMS and data services respectively. Even if the roaming traffic responded positively to further price reductions, its volume would still be negligible in comparison to the local.

Figure 13. Detailed effective prices and monthly traffic overview, Ukraine 2014-2016



Source: Effective prices and traffic data provided by the operators

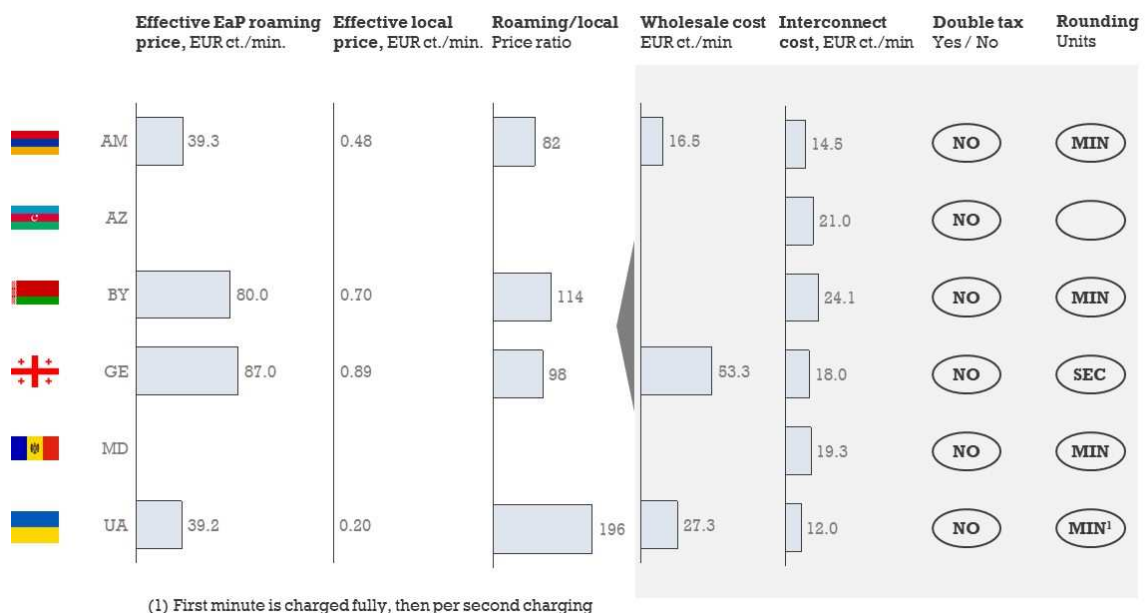
4.2.4 EaP ROAMING PRICES AND COST COMPARISON

In this section, only tariffs that would be affected by an RRA are discussed, namely EaP roaming tariffs. The detailed price breakdown for different services is discussed for each EaP country and compared with the price of the local services charged in the home country. Also, wholesale costs are compared with prices. An assessment is made of the extent to which high regional tariffs are driven by the corresponding costs and thus an estimate is made of the extent to which tariffs could be reduced without compromising the operators' market activities.

4.2.4.1 SUMMARY

Before going into a detailed country analysis, Figure 14 below illustrates and summarises the costs and prices of all roaming services cross-nationally. Countries should be understood as home providers for roaming consumers and the effective EaP roaming prices give the weighted averages offered by the operators.

Figure 14. Summary of EaP roaming outgoing voice prices and costs



Source: Consolidated country level data provided by the operators

Figure 14 demonstrates that outgoing roaming voice prices range from 39.2 to 87 EUR/cents per minute. This is in contrast with local prices of typically less than 1 EUR/cent per minute. Roaming prices are 80 to 200 times higher than corresponding local prices. High wholesale costs are the main reason why roaming prices are so high. A relatively high international mobile interconnect rate contributes to high wholesale costs. Interconnect costs have a twofold effect: they generate additional revenue but at the same time they constitute a cost for operators from other countries. For example, if clients from Ukraine travel to Georgia and make a call to their home network in Ukraine, their home operator incurs wholesale costs towards the foreign operator; at the same time, it receives interconnect revenue from the Georgian operator. However, it is important to note that interconnect revenues are received when customers call their home network.

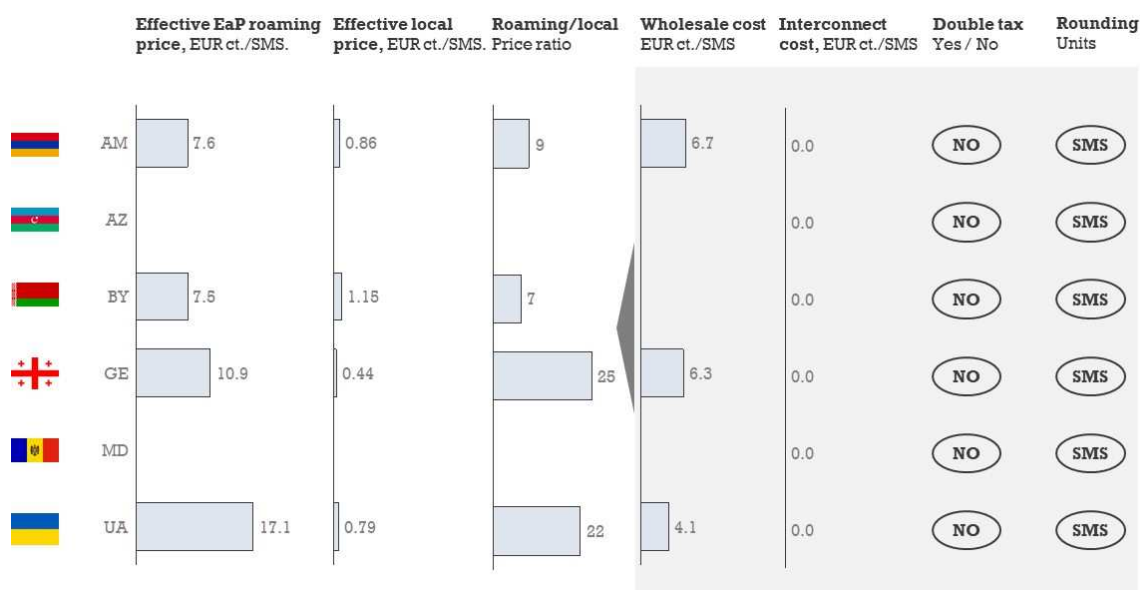
Furthermore, the operators benefit from large retail margins once they have paid their wholesale costs. Accordingly, retail roaming tariffs also need to be regulated together with wholesale tariffs.

In order to achieve lower retail prices regulators in EaP countries need to reduce wholesale costs, retail costs as well as international mobile interconnect costs.

Double taxation, which implies that customers can be taxed both in their home country and in their visiting country, could have the effect of increasing retail prices. However, the analysis by the Study Team of the tariffs applied in the EaP countries shows that in none of them there are double taxation issues for any service (voice, SMS, data). Thus, a separate solution to avoid double taxation is not required.

Most operators in EaP countries charge their customers by the minute, while, as can be seen from Figure 14, only in Georgia customers are charged by the second. Practice shows that billing retail services on a per minute bases can increase end-users' expenses by up to 24 %.⁹⁷ The study team recommends following the Georgian example and implement per second pricing for voice calls in order to ensure that the most favourable conditions are offered to the consumers and that voice roaming voice tariffs effectively decrease.

Figure 15. Summary of EaP roaming SMS prices and costs

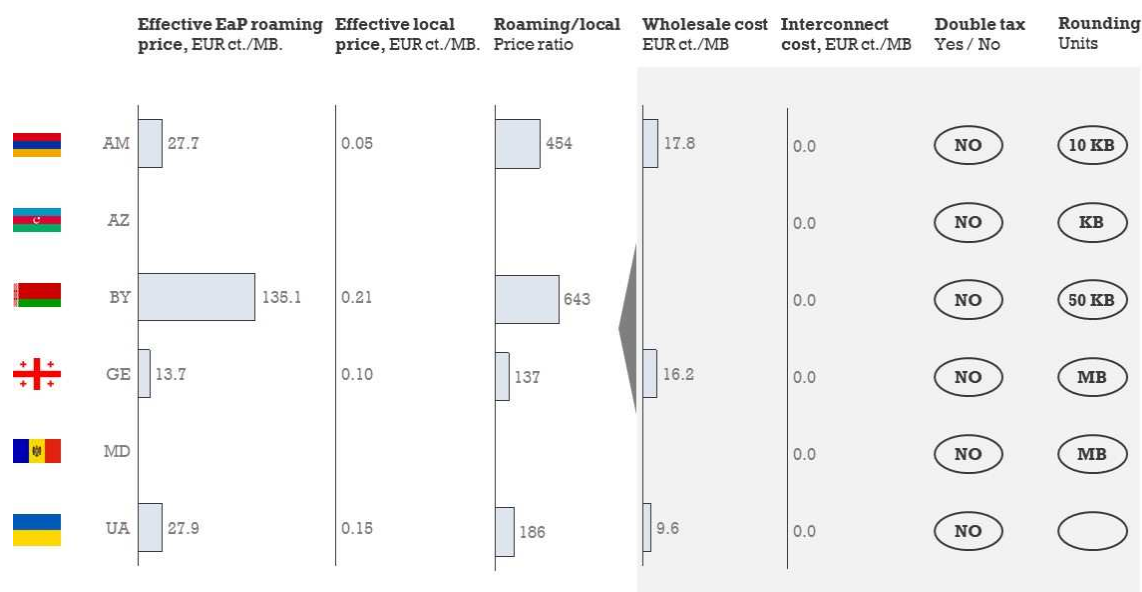


Source: Consolidated country level data provided by the operators

Roaming SMS prices range from 7.5 to 17.1 EUR/cents, this is 10 to 30 times more than local SMS prices. Also, in this case, high wholesale costs are the main factor for large retail prices, compounded by the significant margins charged by the operators (especially in Ukraine in case of SMS).

⁹⁷ Recital (18) of the Regulation No 544/2009 of the European Parliament and of the Council. Available at <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2009:167:0012:0023:EN:PDF>

Figure 16. Summary of EaP roaming data prices and costs



Source: Consolidated country level data provided by the operators

There are significant differences in roaming data prices in EaP Countries. The lowest prices are in Georgia (13.7 EUR/cents per MB) and the highest are in Belarus (135 EUR/cents per MB). Local prices per MB are typically less than 0.2 EUR/cents. Roaming prices are at least 140 times higher than local prices in Georgia, and this ratio can be as high as 643 times in Belarus. Again, wholesale costs are the main reason for high retail prices, but retail margins are also very high. This calls for both wholesale and retail price regulation.

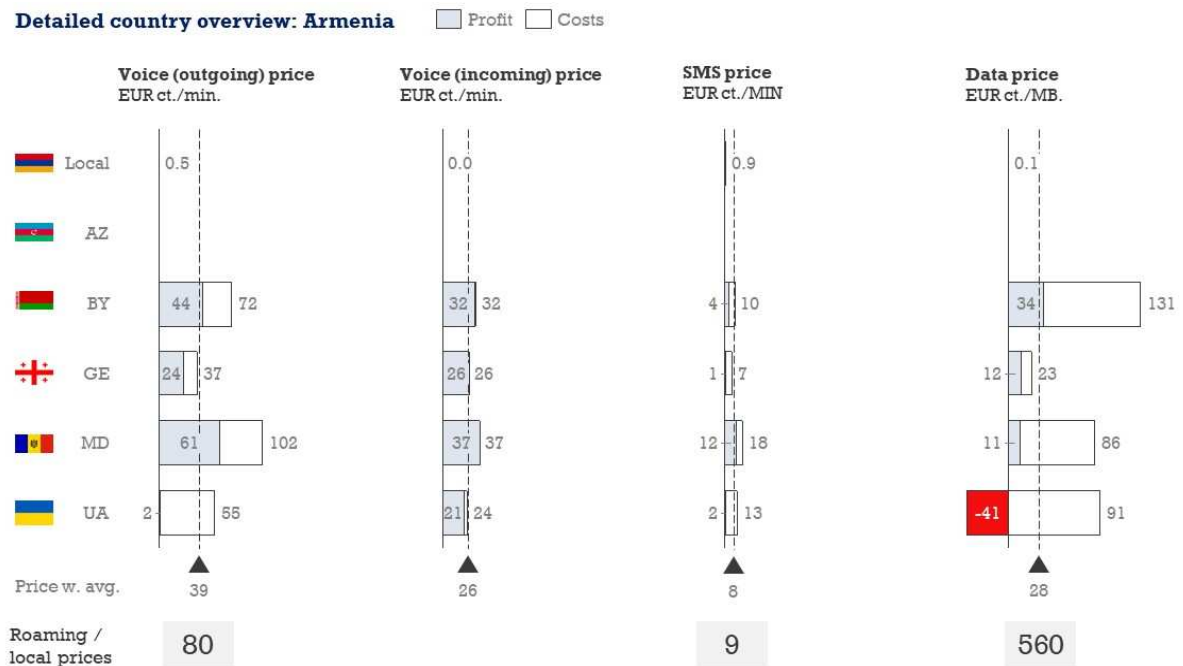
4.2.4.2 DETAILED COUNTRY OVERVIEW

This subsection presents a roaming price and cost analysis for each EaP country whose data were available. The analysis evaluates prices of roaming within the EaP Countries and compares them with the corresponding costs. Roaming revenue, cost and traffic data for 2016 were used, except for Azerbaijan and Moldova, whose operators did not provide the relevant financial data (see 3.3, p. 11 for details).

4.2.4.2.1 ARMENIA

The following graphs show the tariffs applicable to users from Armenia travelling in other EaP Countries. The “local” bars refer to the prices charged for domestic services at home, while the dashed lines show the weighted averages (by corresponding traffic). Also note that in Figure 17 the white areas represent the costs of roaming services, and profits (revenue minus costs) are shaded in grey.

Figure 17. Detailed country overview of EaP roaming prices and costs - Armenia



Source: EaP roaming data provided by the operators

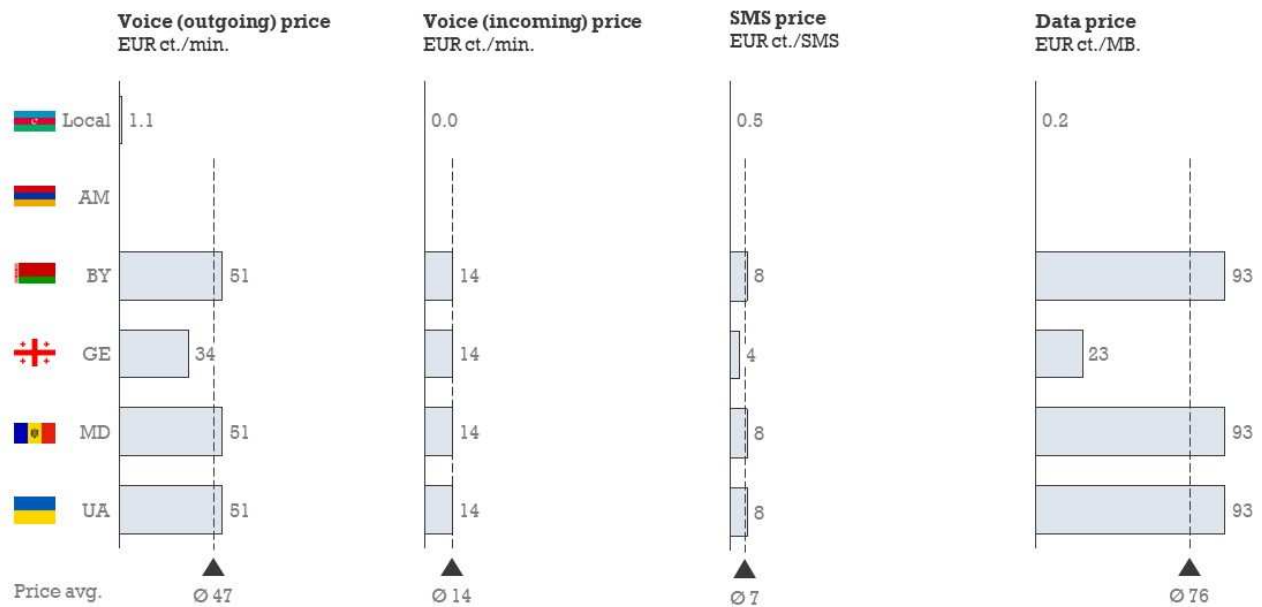
Armenians who travelled to other EaP Countries in 2016 were paying on average approximately 39 EUR/cents per outgoing minute, 26 EUR/cents per incoming minute, 8 EUR/cents per SMS sent and 28 EUR/cents per MB of data. While the deviation in price for the incoming voice was largely limited, the outgoing roaming tariffs varied substantially depending on the country where the service was used. Making a roaming call would cost less than 38 EUR/cents in Georgia (equivalent to 75 local minutes), but would have been much more expensive in Moldova, 102.4 EUR/cents per minute, equivalent to nearly 205 local minutes. More importantly, the price did not fully reflect the cost structure, as the profit margin ranged from 60% in Moldova to 3% in Ukraine. As for the SMS services, there was approximately an eightfold difference when compared with the local tariffs. Yet, the roaming prices generally tended around the mean. The situation was much more interesting for the roaming data services, as the Armenian operators faced relatively high costs, particularly in Belarus (nearly 1 EUR per MB) and Ukraine (1.3 EUR). Only in Georgia 1 MB of service would cost below 11 EUR/cents, for which the consumer would be charged 23. Given that the unweighted average price would be 0.8 EUR per MB, it can be assumed that the traffic in Georgia was exceptionally high. It is to be noted that data prices in Ukraine were so low that operators were essentially experiencing losses.

4.2.4.2.2 AZERBAIJAN

The data to derive effective prices for Azerbaijan was not provided. The prices presented in Figure 18 were collected from the official website of the largest operator in the Azerbaijan – Azercell. Figure 18 shows a detailed country overview of EaP roaming prices applicable to travelling mobile users of Azerbaijani home operators. As the operators' data were unavailable for Azerbaijan, the listed prices were used for the analysis. Costs, hence profits, are not specified.

Figure 18. Detailed country overview of EaP roaming prices - Azerbaijan

Detailed country overview: Azerbaijan



Source: EaP roaming prices of the largest local operator. Collected on 2017.09.01 from the public website

The bar chart in Figure 18 shows that there was only one price charged for incoming voice services of 13.6 EUR/cents per minute. Consumers were charged uniformly in Belarus, Moldova and Ukraine (51 EUR/cents per min of roaming calls made, 8.5 EUR/cents per SMS and 93.2 EUR/cents per 1 MB) while those visiting Georgia enjoyed lower prices: voice and SMS service tariffs were nearly twice cheaper and prices for data services were particularly convenient as 1 MB of data in Georgia was 4 times cheaper than elsewhere. However, it is to be noted that reference is made only to the listed prices, which substantially simplifies the variability of the actual amount paid by consumers for services used. It is possible that such a homogeneity in price would not have been observed if analysing the effective prices.

4.2.4.2.3 BELARUS

Figure 19 shows an analysis of the roaming prices charged to Belarusian users. It is worth noting that the breakdown of costs, and hence the profit, could not be assessed as the required data were unavailable.

Figure 19. Detailed country overview of EaP roaming prices - Belarus



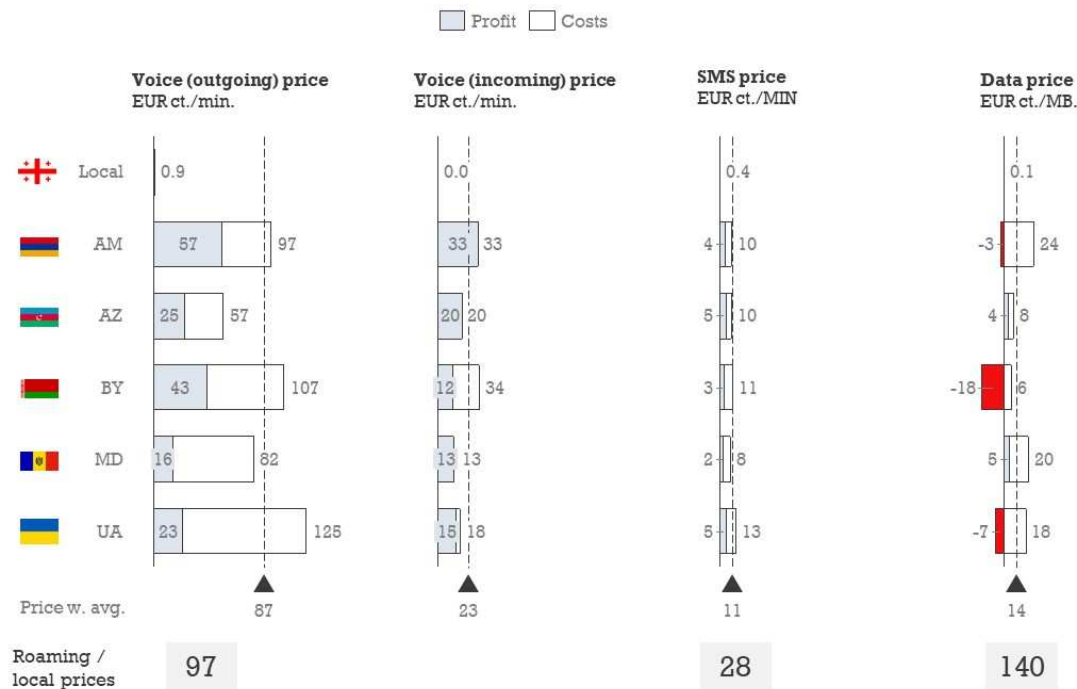
Source: EaP roaming data provided by the operators (cost data were not available)

Roaming prices for incoming and outgoing voice services, SMS and data were not far from the EaP mean. Outgoing calls and SMS services were slightly more expensive in Georgia, at 22.4 EUR/cents and 5.1 EUR/cents respectively. Prices for data ranged from 1.09 to 1.92 EUR per 1 MB. However, in Armenia, the data services were highly expensive as consumers were charged nearly 12 EUR per 1 MB (equivalent to 11.5 GB of local data and 6 MB of roaming data in the second most expensive country). Again, one should bear in mind that the method based on the listed prices constrains the actual variance and is less reflective of the actual situation in the market.

4.2.4.2.4 GEORGIA

Figure 20 below shows a breakdown of prices, costs and profit relative to roaming services used by travelling customers from Georgia within the EaP

Figure 20. Detailed country overview of EaP roaming prices and costs - Georgia



Source: EaP roaming data provided by the operators

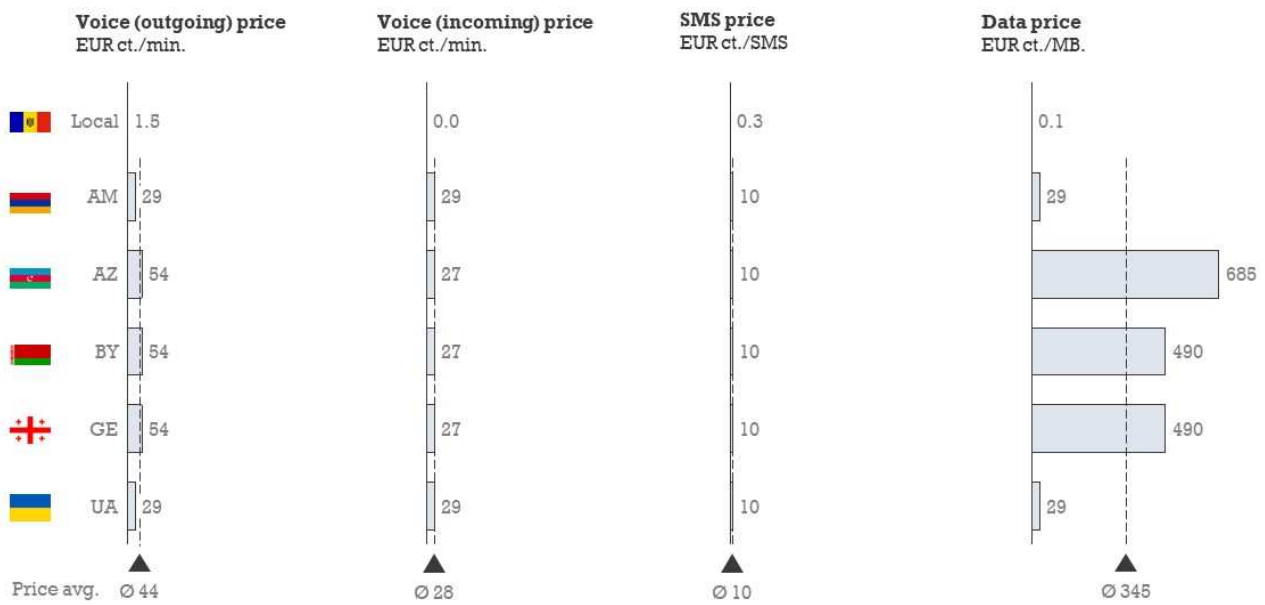
A substantial variation in prices charged was observed. Each roaming minute for calls from Ukraine was more than 40% more expensive than the average, in fact, the highest across the area. On the other hand, Georgian travellers in Azerbaijan were only paying 57 EUR/cents per minute (a half of what they would have been charged in Ukraine). Similarly, the cheapest SMS services were offered in Azerbaijan and Moldova, while SMS tariffs in Belarus and Armenia were much higher. The roaming prices were not explained completely by the corresponding costs. In Ukraine and Moldova, the cost for outgoing voice services consumed most of the price, leaving only a 23% margin, relatively low for the industry standards. In contrast, consumers were charged very high prices in Armenia, allowing a profit margin of nearly 60%. It is to be noted that, due to the data service costs, these services in Armenia, Belarus and Ukraine were unprofitable. Despite the costs and experienced losses, prices for data services charged in Belarus were still the lowest in the EaP group.

4.2.4.2.5 MOLDOVA

Figure 21 presents the prices applicable to users from Moldova. Since the financial data from operators were unavailable, the listed prices were studied instead.

Figure 21. Detailed country overview of EaP roaming prices - Moldova

Detailed country overview: Moldova



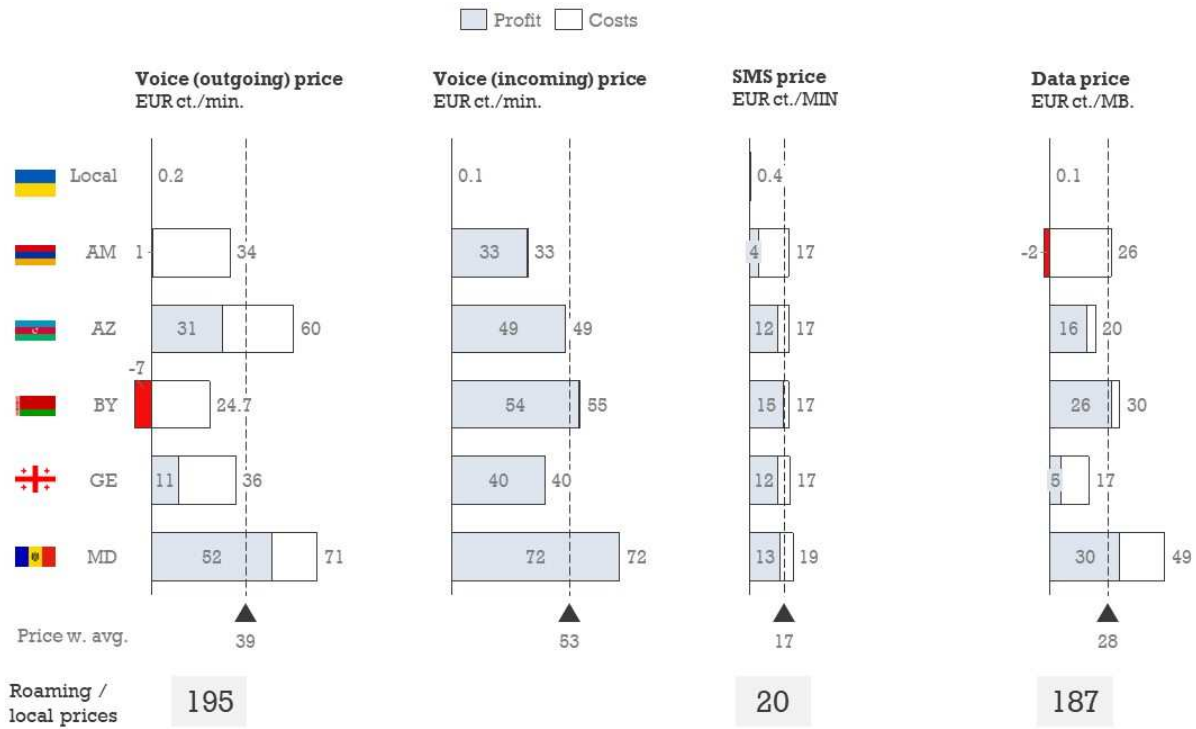
Source: EaP roaming prices of the largest local operator. Collected on 2017.09.01 from the public website

Customers roaming in Armenia and Ukraine were charged the same price of 29.4 EUR/cents for both incoming and outgoing voice services. The prices for voice services in the remaining EaP Countries were nearly twice as high for the outgoing calls (53.9 EUR/cents). Incoming services were slightly less expensive (27.4 EUR/cents per minute). The roaming SMS prices were charged uniformly regardless of the country from which they were sent. On the contrary, Moldovan users were paying very variable prices for the data roamed depending on the roaming location. In Azerbaijan, Moldovan travellers were paying the highest price of nearly 7 EUR per 1 MB. In Georgia and Belarus, albeit less than in Azerbaijan, the use of Internet was still relatively expensive at nearly 5 EUR per 1 MB. Finally, customers roaming in Ukraine and Armenia only paid 0.3 EUR per 1 MB.

4.2.4.2.6 UKRAINE

Tariffs charged to Ukrainian users travelling within the EaP territory are reported in Figure 22 below.

Figure 22. Detailed country overview of EaP roaming prices and costs - Ukraine



Source: EaP roaming data provided by the operators

In general, the services used in Moldova were the most expensive for Ukrainians. However, these prices did not reflect the underlying cost of outgoing voice and data services, allowing the operators remarkable profit margins of 73% and 62% respectively. Azerbaijan was the second most expensive destination regarding the roaming tariffs, while prices in the other three EaP Countries were comparably lower. Although the roaming costs and prices in Georgia were relatively low, the operators still made a 30% profit. On the contrary, voice services in Belarus produced a net loss of 7.2 EUR/cents per minute.

4.3 RECOMMENDATIONS ON TOOLS AND MEASURES FOR POSSIBLE ROAMING REGULATION IN EAP COUNTRIES

This section analyses how the roaming regulations were implemented in the EU and provides examples of best practices from the Western Balkan countries ⁹⁸.

It also examines the reduction in roaming services charged within European Economic Area (EEA) and their impact on the demand of services together with benefits for the customers, potential losses for the operators and gains for the economy as a whole.

4.3.1 ANALYSIS OF BEST PRACTICES IN THE EU

The European Union Roaming Regulations are binding and apply directly to the 31 EEA Members; the 28 members of the EU and their outermost regions plus three, out of four, EFTA Member States: Iceland, Liechtenstein and Norway ⁹⁹.

They regulate both the charges that a mobile network operator can impose on its subscribers for using telephone and data services outside of the Member State networks, and the wholesale rates mobile network operators can charge each other to allow their subscribers access to each other's networks.

Since 2007, the EU Regulations, (binding in their entirety and directly applicable in all Member States), have steadily lowered the maximum roaming charges allowable. Regulation 2017/920 has led to the abolition of all roaming charges for temporary roaming within the EEA as of 15 June 2017.

Indeed, within the EU it became apparent that the single National Regulatory Authorities (NRAs) could not individually manage the issue of very high retail prices due to the cross-border nature of international roaming. An NRA that protects its national consumers cannot control the actions of mobile operators of visited countries that are located in other Member States. They do not have incentives to force their national providers to reduce their wholesale tariff, since the beneficiaries of this measure would be foreigners. Thus, a centralised intervention was launched to better address the general interest of the citizens of all EU Member States. Furthermore, the central decisions avoided individual Member States' divergent approaches for dealing with the problem of high prices, which would have created obstacles to the Internal Market since EU consumers could have been treated differently ¹⁰⁰.

To explain and complement the Roaming Regulations, the Body of European Regulators for Electronic Communications (BEREC) published its Guidelines to the EU Roaming Regulations ¹⁰¹. The NRAs of the Members States refer to the Guidelines when resolving disputes or taking enforcement actions at national level ¹⁰².

⁹⁸ Based on Western Balkans study, InterConnect Communications, Op.Cit.

⁹⁹ Switzerland is part of EFTA but does not abide by the EU Roaming Regulations

¹⁰⁰ Commission staff working paper: impact assessment of policy options in relation to the Commission's review of the functioning of Regulation (EC) no 544/2009 of the European Parliament and of the Council of 18 June 2009 on roaming on public mobile telephone networks within the community

¹⁰¹ Regulation 531/2012, Regulation 2120/2015, Commission Implementing Regulation 2286/2016 (Retail Roaming Guidelines) and Regulation 920/2017 (Wholesale Roaming Guidelines)

¹⁰² The Guidelines are not presented as an official legal interpretation

In conclusion, there is no national roaming regulation in the EU Member States since they apply the EU Roaming Regulations and the BEREC Guidelines. However, the EU NRAs are still responsible for the implementation of the EU roaming regulations in accordance with the BEREC Guidelines. They have, therefore, interpreted the regulations to ensure their enforcement and a level playing field between the EU Regulations and the requirements of the roaming operators.

As the EaP Countries do not have any supranational authority that could regulate their internal electronic communications market, the REWG network representing the EaP Countries can serve as a central coordinator of national policies.

The REWG network representing the EaP Countries can serve as a structure of relevant competencies that analyses the market and regulations in the EaP Countries, roaming regulation practice and provides advice and proposals to national policymakers on roaming policies. This would be the way for the EaP Countries to adopt measures at a national level that would be consistent throughout the countries and deliver a harmonised approach.

4.3.2 ANALYSIS OF BEST PRACTICES IN THE WESTERN BALKANS

On 29 September 2014 an Agreement on Reducing Prices of Roaming Services on Public Mobile Communications Networks (hereafter called the Regional Roaming Agreement or RRA) was signed between Bosnia and Herzegovina, Montenegro, Serbia, and the former Yugoslav Republic of Macedonia calling for the implementation of a set of reciprocal price control measures on roaming prices by the parties to the agreement.

This section analyses the changes brought to the Western Balkans countries legislation in order to implement their RRA and how the parties agreed to carry out the legislative changes that they committed to in the RRA. It should be highlighted that the administrative, economic, political and cultural situation of the Western Balkans is quite different to that of the EaP Countries and comparisons between the two areas should take into consideration these differences.

The relevant ministries committed to “initiate” procedures within thirty days of the signing of the RRA to amend their electronic communications laws to allow that the price of roaming services be “set on a reciprocal basis” and in line with the then-relevant EU prices or EU Regulations.

In particular, the parties committed to create the necessary legal authority and mandate for roaming price controls through a new provision in their respective telecommunications laws.

The Regulators were called upon to take the responsibility for the implementation of the RRA based on the law that can require a creation of a legal authority. They were also called to organize their representation in the RRA coordinating body.

The success of the execution of the RRA is largely due to the strong political will of the relevant Ministries and to a well-staged, coordinated approach by the Regulators to implement the RRA within the same timeframe, by imposing a reduction of roaming tariffs to the mobile operators even when they did not yet have full power to do so. The mobile operators adhered to the decisions of the Regulators, although in Montenegro they brought the case before a judiciary court.

The following changes were made to the legislative frameworks:

- In Bosnia and Herzegovina, no action toward an amendment to the primary law was necessary since the regulator already had the legal authority necessary for RRA implementation;
- In the former Yugoslav Republic of Macedonia, the regulator assisted the relevant ministry by proposing an amendatory article to the law and both institutions cooperated to have it promulgated in a timely manner. The RRA is implemented and effective by regulation pursuant to the amended primary law;
- In Serbia and in Montenegro, the regulators needed additional legal authority to implement the RRA and primary laws amendments had to be implemented;
- In Serbia, the Ministry of Trade, Tourism and Telecommunications (MTT), intended to resolve the lack of sufficient legal authority for Regulator, the Republic Agency for Electronic Communications (RATEL), in the context of a comprehensive replacement of the Law on Electronic Communications. The drafting of the new law on electronic communications to be compatible with the EU 2009 framework was approved by the government and is expected to be presented in Parliament shortly¹⁰³. The new law will provide a basis for clear international commitments and the Regulator is due to be in charge of the implementation of the RRA. The changes to the roaming tariffs were implemented pursuant to the enforcement power stemming from the RRA;
- In Montenegro, the Ministry for Information Society and Communications proposed amendments to the Law on Electronic Communications and the new law entered into force in January 2017. Operators of mobile communications in Montenegro have been implementing the RRA prices as scheduled.

In conclusion, it is noteworthy that all the countries except Bosnia and Herzegovina needed some amendments to their primary laws to enable their Regulators to implement the RRA prices, however this did not prevent the parties to the RRA to execute the agreement even before the application of the new laws.

Other initiatives to reduce roaming tariffs and ensuring the protection of the operators' revenue, in the short and in the long run, as developed by the EU and West Balkan exist such as the ones launched by the Associação de Reguladores de Comunicações e Telecomunicações da Comunidade dos Países de Língua Portuguesa (ARCTEL-CPLP)¹⁰⁴, or the East African Community "One Network Area" (ONA-EAC) or, the International Roaming Regulatory Initiative of the Arab Regulators Network (AREGNET) of the Gulf Cooperation Council.

However, differently from the EU and the Western Balkans, for these other initiatives there is no concerted regulatory intervention, so far, to impose a reduction of the roaming tariffs.

¹⁰³ Information provided by the Regional Cooperation Council, Bosnia and Herzegovina

¹⁰⁴ The Association of the Portuguese Speaking Countries of Regulators of Communications and Telecommunications

4.3.3 BENCHMARKING THE ROAMING PRICES AND TRAFFIC IN THE EEA

4.3.3.1 HISTORY OF EU ROAMING REGULATION

To evaluate the consequences of the roaming retail rates reductions the following section uses publicly available data to build supply and demand models for each of the four services – outgoing voice, incoming voice, SMS, data.

High roaming prices and fragmented national regulations were long-standing issues hindering the realisation of the single EU telecommunications market. Since 2006, the European Commission had productively reformed the market for roaming services. Fully effective from June 2017, travellers within the EU can call, text and access the Internet at their domestic tariff or just at a trivial surcharge. Similarly, there is more competition among mobile operators further to the implementation of the wholesale roaming services regulation.

A summary of the EU roaming regulations follows to show how the continuous decrease of the regulated price caps was introduced:

Roaming Regulation 717/2007 of June 2007 capped the wholesale and retail prices charged for the outgoing and incoming voice calls and introduced several transparency provisions that all came into effect in the third quarter of the same year.

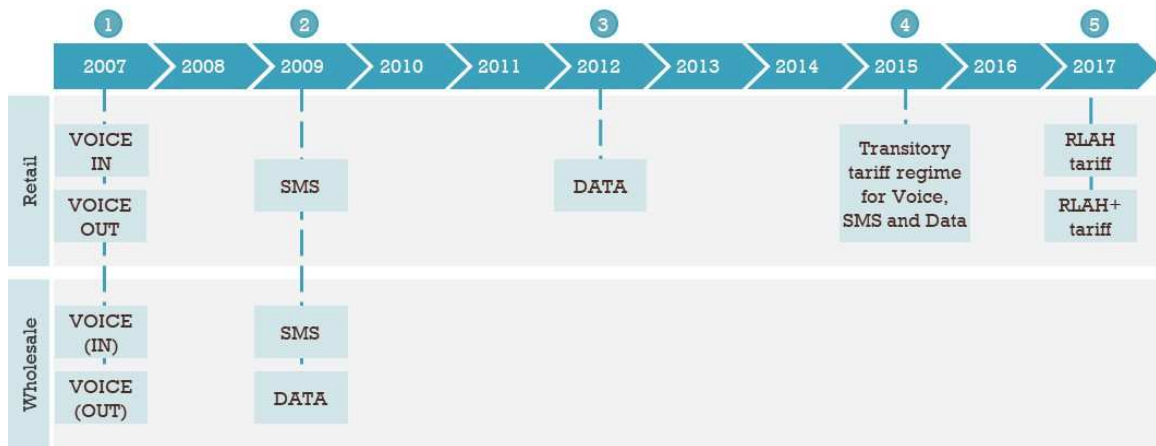
Roaming Regulation 544/2009 of July 2009 extended the earlier price regulations for the voice calls, capped the wholesale and retail prices charged for the SMS roaming services and capped the wholesale prices charged for the data roaming services.

Roaming Regulation 531/2012 of June 2012 introduced further revisions that extended the existing price regulations, capped the retail prices of the data roaming services and introduced additional obligations for meeting the requirements of the wholesale roaming exchange.

Roaming Regulation 2120/2015 of November 2015 determined the abolition of retail roaming charges by defining that no surcharges should be levied in addition to domestic retail price for roaming calls made or received, roaming SMS send and data roaming services used as of 15 June 2017. In order to have a sustainable introduction of Roam Like At Home and to minimise the regulatory effect on domestic pricing models, the regulation laid down the principles of the fair use policy and the derogation mechanism. This regulation also imposed reduced retail roaming prices for the transition period from 30 April 2016 to 15 June 2017.

Roaming Regulation 920/2017 of May 2017 introduced the new wholesale tariffs and has enabled the creation of a new regulatory regime based on the 'Roam-Like-At-Home' principle that either abolished all roaming charges above the domestic price within the regulated countries or only allowed a minimal surcharge (No. 4 in Fig. 22).

Figure 23. Regulated price caps and their regulatory timeline



Source: EU Commission

Unsurprisingly, all these regulations yielded new pricing terms for the roaming customers that are defined as follows:

Eurotariffs – the mobile tariffs applicable from mid-2007 to April 2016 that complied with the regulated price caps and regulated billing units. Roaming providers had to make these tariffs automatically available to all roaming customers where the regulations applied. Due to the new 2017 regulations, these tariffs are no longer applicable.

RLAH ('Roam Like at Home') tariffs – the mobile tariffs that do not levy any surcharge in addition to the domestic price paid by the roaming customers. They replaced the Eurotariffs.

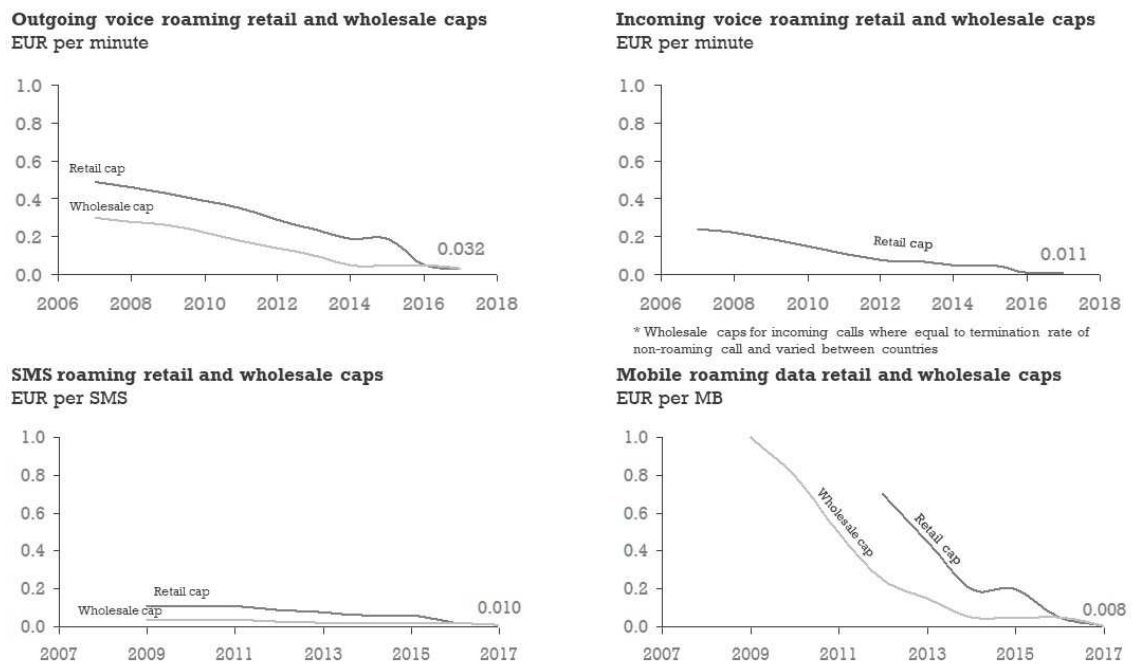
RLAH+ tariffs – in addition to the RLAH tariffs, the mobile tariffs that allow a small surcharge on the domestic retail price when exceeding the fair use limit or when the derogation mechanism is applied, if for instance the domestic retail prices are lower than the wholesale roaming prices. Such extra charge ensures that the provider is not making a net loss due to the application of the RLAH pricing principle.

Non-Eurotariffs (later Alternative tariff) – these are the available alternatives to the regulated tariffs such as a special roaming package, offered by the operators which must be deliberately chosen by the roaming customer. These roaming packages generally cover, but are not necessarily limited to, the EEA countries.

Fixed periodic tariffs – these are the alternative tariffs special cases that are charged per diem, or any other fixed period, for a certain volume of the regulated roaming consumption. The full amount consumed, however, cannot exceed the applicable domestic price. These tariffs were introduced from 30 April 2016.

Figure 24 below summarizes the development in wholesale and retail caps for voice, SMS and data services.

Figure 24. Regulated price caps and their regulatory timeline



Source: EU Commission

4.3.3.2 CONSEQUENCES OF THE DECREASE IN ROAMING CHARGES IN THE EEA

To evaluate the consequences of the roaming retail rates reductions the following section uses publicly available data to build supply and demand models for each of the four services – outgoing voice, incoming voice, SMS, data.

4.3.3.2.1 ANALYSIS OF THE AVERAGE QUARTERLY ROAMING PRICES AND CUMULATED QUARTERLY VOLUMES WITHIN THE EEA

The scope of this analysis ¹⁰⁵ covered the average quarterly prices and the cumulated quarterly volumes within the EEA, as the EU Roaming Regulations apply to the EU Member States and three EFTA members. Even though the regulations spanned over a decade, due to some missing data this analysis is limited to a 7-year-period (from 2009 to 2015) for the roaming voice calls and the SMS roaming services and to a 4-year-period (from 2012 to 2015) for the data roaming services. The years 2016 and 2017 were unfortunately excluded, since the respective retail prices were not provided due to difficulties in disaggregating the roaming price from increasingly bundled service offers. By default, the analysis is solely based on the Eurotariffs and Non-Eurotariffs (RLAH had not been yet introduced and when the present Study was being compiled, the data was not available).

4.3.3.2.2 METHOD OF THE ANALYSIS

The BEREC data were used for the price and volume variables, which were the basis for calculating the revenue and the (hypothetical) consumer savings. Illustrative time series were then produced, to discuss how the variables changed over time and in relation to each other.

¹⁰⁵ The data for the market analysis was extracted from BEREC's Benchmark Report on International Roaming 11th, 12th, 13th, 14th, 15th, 16th, and 17th rounds of data collection

Methodology

Price. The retail price – the charge paid by a roaming consumer to his or her domestic provider – was originally given as either the Eurotariff or the Non-Eurotariff in euros excluding VAT. (As currency fluctuated over time, these prices might be different in the earlier sources.) The Non-Eurotariff that was not required to comply with the regulations generally followed a similar downtrend over time to the Eurotariff. Moreover, since the consumers primarily discriminate between the price rather than the regulatory dichotomy (“regulated” tariff vs. “non-regulated”), it was decided to base the price variable on the weighted average of both tariffs using the following procedure:

(Simple) yearly averages of the Eurotariff and Non-Eurotariff were derived from their quarterly data;

Yearly revenues from the roaming services charged at the Eurotariff and yearly revenues from the roaming services charged at the Non-Eurotariff were added together to the total yearly revenue;

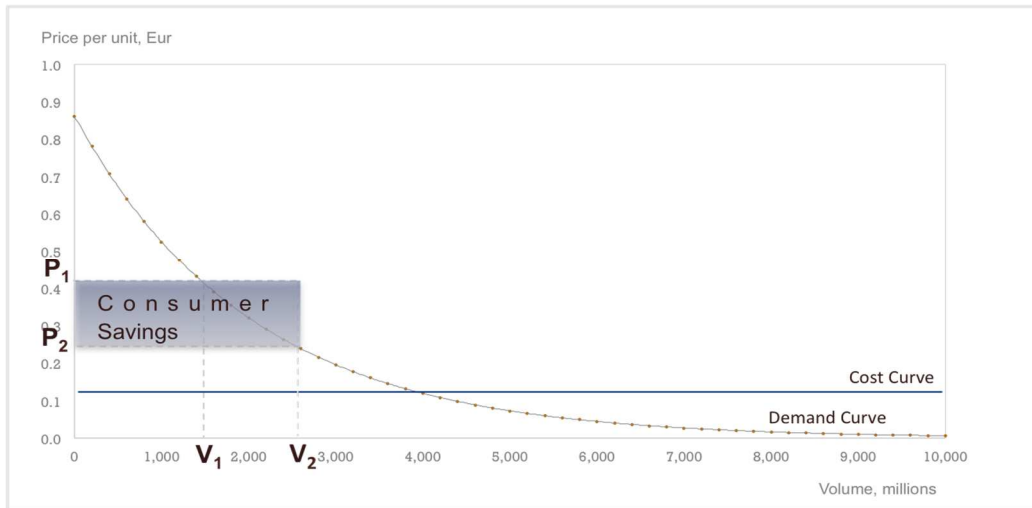
Weighted average tariffs were then obtained by taking a ratio of the yearly total revenue and the yearly total volume (volume of roaming services charged at the Eurotariff and at the Non-Eurotariff). Derived tariffs generally complied with the EU roaming regulations for each roaming service, as shown in the graphs below:

Volume. In order not to limit the period analysed further, some of the following missing quarterly volumes were estimated 1st quarter of 2009 for the outgoing and incoming roaming voice calls, 1st and 2nd quarters of 2009 for the roaming SMS and 1st and 2nd quarters of 2012 for the roaming data. Estimates were derived by taking the rate at which the volume changed during the last two respective quarters (e.g. the estimate for 1st quarter of 2009 is based on the rate of change between 1st quarters of 2010 and 2011). The quarterly volumes of the roaming services charged at the Eurotariffs were added with the corresponding volumes charged at the Non-Eurotariffs. Due to large seasonal fluctuations total quarterly volumes were then aggregated yearly and used as the volume variable. The volume of the outgoing and incoming roaming voice calls, the SMS services and the data services were given in the millions of minutes, millions of messages and millions of MB respectively unless units were stated otherwise.

Revenue. Since the revenues of the roaming services were not reported by BEREC, they were calculated by taking a product of the weighted average tariff and the respective total yearly volume. All revenues were given in millions of euros.

Consumer savings (Figure 25). These savings were computed by multiplying the total difference in price ($P_1 - P_2$ on the graph) by the most recent volume consumed (V_2 on the graph). Hence, the price difference from 2009 to 2015 was taken for the voice calls and the SMS services and the price difference from 2012 to 2015 was taken for the data services, which both were then multiplied by the respective volumes of 2015. These, however, are the hypothetical rather than the actual savings in the sense that the volumes of 2015 would not have been consumed if the price had not been reduced substantially. That still was a good starting point for estimating the effect of the reduced roaming prices principally from the consumer perspective.

Figure 25. Consumer savings calculation



Source: Created by authors

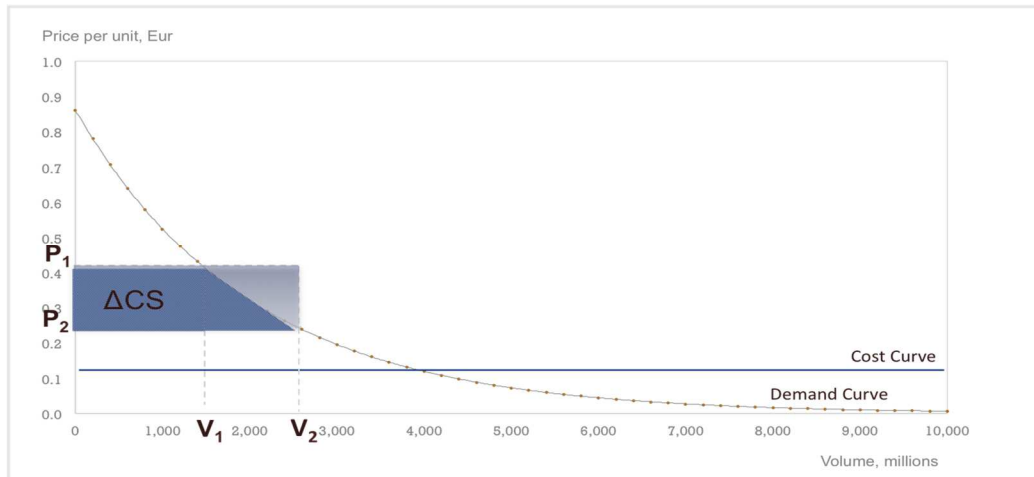
Subsequently, the economic models were employed to quantify, visualize and evaluate the effect of the reduced roaming charges in a more sophisticated manner. Particularly the economic surpluses were examined in the roaming service markets

Constructed demand curve. For each roaming service, the effective prices were plotted vertically against the volume. The data scatter was then fitted exponentially by regressing the volume (the outcome) on the price (the explanatory variable) and consequently the curves of demand were constructed. Incidentally, putting the price variable on the vertical axis and the volume variable on the horizontal axis would have just shown the conventional demand curve, which did not change the statistical interpretation of the variables in any way.

Consumer surplus (Figure 26) is a measured difference between the price charged and the maximum consumers' readiness to pay, hence the demand, for the respective amount of service. Accordingly, the effective prices were inserted into the constructed curves of demand to define and integrate the area of the consumer surplus. The graphs below show how such areas change respectively to the changes in price, hence the volume consumed. For simplicity reasons the surpluses are expressed in the monetary terms (Euro), although they should be understood as the gains in the consumers' utility (i.e. satisfaction benefits) rather than as the tangible surpluses.

More importantly, the consumer surplus accounts for the fact that the volume changes along with the price rather than simply taking the difference in price at the volume consumed in one point of time. Consequently, the difference in the consumer surpluses is shaped as the right-angled trapezoid (ΔCS on the graph) rather than rectangular consumer savings. It is in fact a more comprehensive attempt to estimate the effect of reduced roaming than the hypothetical customer savings, which overestimate the effect in the triangularly shaded area.

Figure 26. Consumer surplus calculations



Source: Created by authors

Producer surplus is a measured difference between the prevailing market price and the needed amount of money to supply the corresponding amount of service to the market. Consequently, the surplus approximates the margin that the producer makes by participating to the market. Since the costs of the roaming services were unknown, it was assumed that to provide a unit of roaming service uniformly, it costs the amount of the wholesale 2017 price. That should be a valid assumption as the wholesale price – a price charged in the provider-to-provider exchanges – had to be relatively close to the net value after the surcharges had been abolished in 2017. Accordingly, the (uniform, hence graphically flat) cost functions were graphed together with the constructed demand curves to quantify the producer surpluses based on the effective prices.

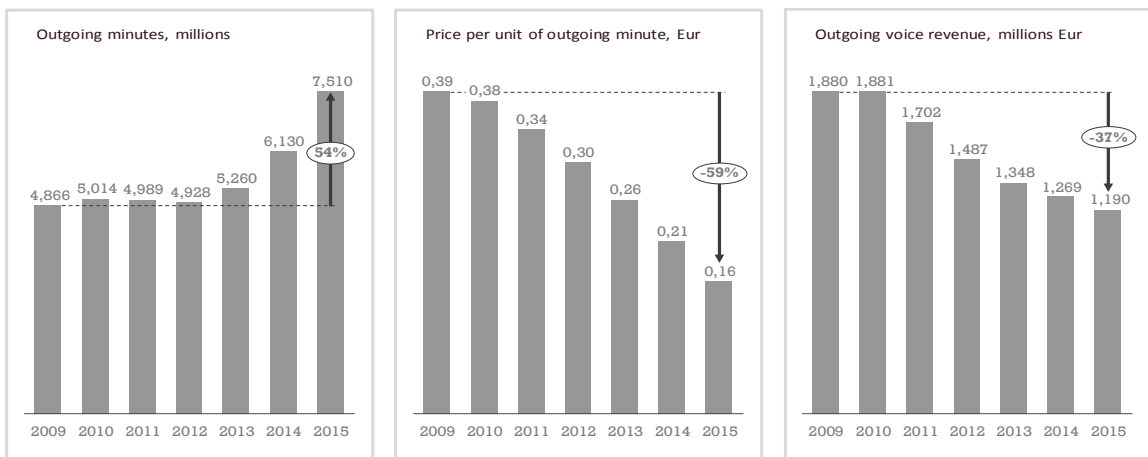
Total surplus is the combination of the consumer and producer surpluses. Price in economics is typically a trade-off between the consumer and the producer: by charging a relatively high price, producers exploit the market demand for their service and cultivate substantial profits, whereas a relatively low price makes a good bargain for the customers, stimulates their consumption and makes the service affordable. Therefore, by looking at the relative changes in the consumer and producer, hence total, surpluses, a net effect to the overall economy can be evaluated. Increased total surplus signals that the market is being used more efficiently, whereas a decrease in the total surplus means the opposite.

In the following subsections, the effective price reductions are evaluated based on the above-mentioned criteria.

4.3.3.2.3 EVALUATION OF THE PRICE REDUCTIONS ON THE OUTGOING ROAMING VOICE CALLS WITHIN THE EEA

As shown in Figure 27, while the reduction in price was rather steadily linear, the volume stayed largely flat until 2013 and then rose exponentially. Mobile users may have required some time to react to the falling price, or more likely, the price above 0.26 EUR/min (prevalent in 2013) was insufficiently low to stimulate any noticeable change in demand. Had these differences in the rate of changes been ignored, the total price difference of 0,23 EUR/min (nearly 60%) would have saved the consumers more than 1.7 billion EUR from 7.5 billion minutes called in 2015. The providers, on the other hand, suffered from a gradual downtrend in their market revenue. The total loss in revenue of 0.7 billion EUR is substantially much less than what was saved by consumers. In addition, revenue could recover in future if consumption continued to grow at a similar rate. However, it is unlikely that the providers will fully recover their loss, as a 54% increase in the volume produced just 63% of the revenue made in 2009.

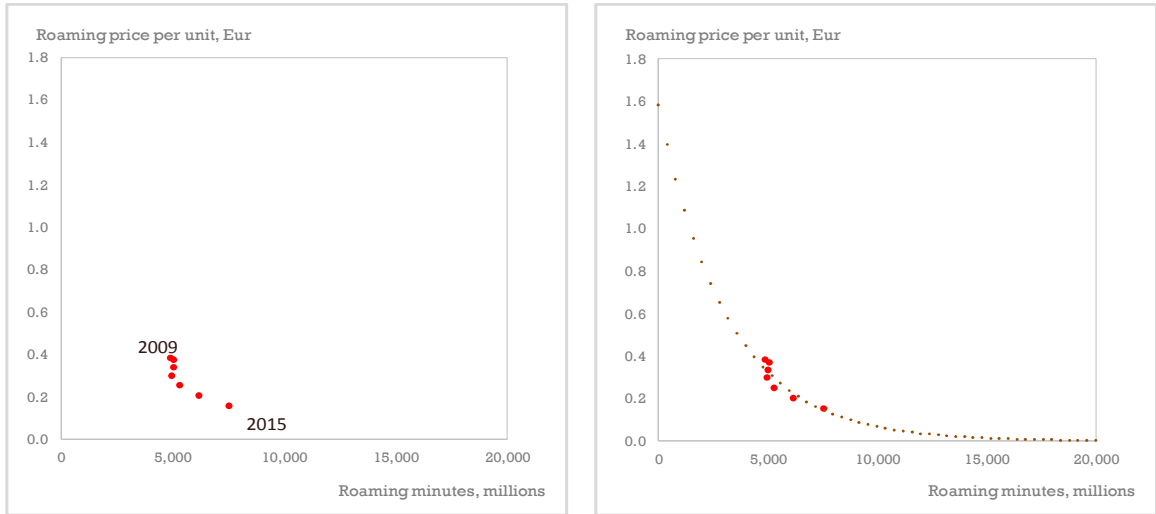
Figure 27. Time series in volume, price and revenue of outgoing voice calls within the EEA



Source: BEREC reported data

The scatter plot of the actual data mostly complies with the law of demand, which states that, *ceteris paribus*, the consumers demand more service at a lower price. The few points at which the volume did not correspond to the falling price could be thus explained as a violation of such *ceteris paribus* condition. For instance, during the economic downturn, mobile users might have travelled abroad, and roamed, less despite the falling roaming price. At this stage, the actual reason is irrelevant as the constructed curve of demand fits the data well and therefore allows a standardised price-and-volume relationship to be used in a further analysis.

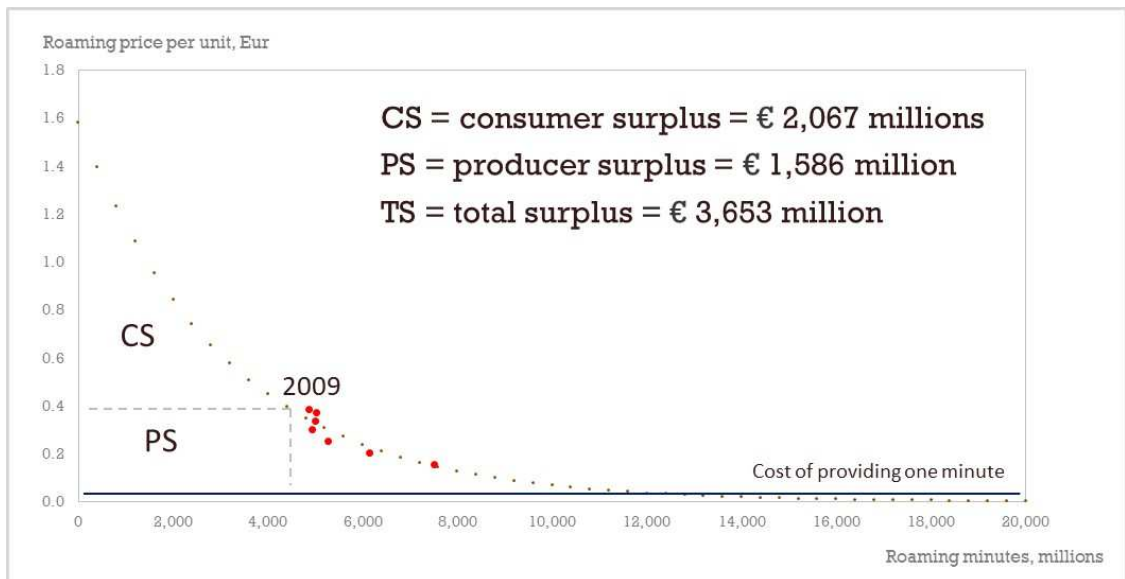
Figure 28. The actually observed data and the constructed demand of the outgoing roaming calls

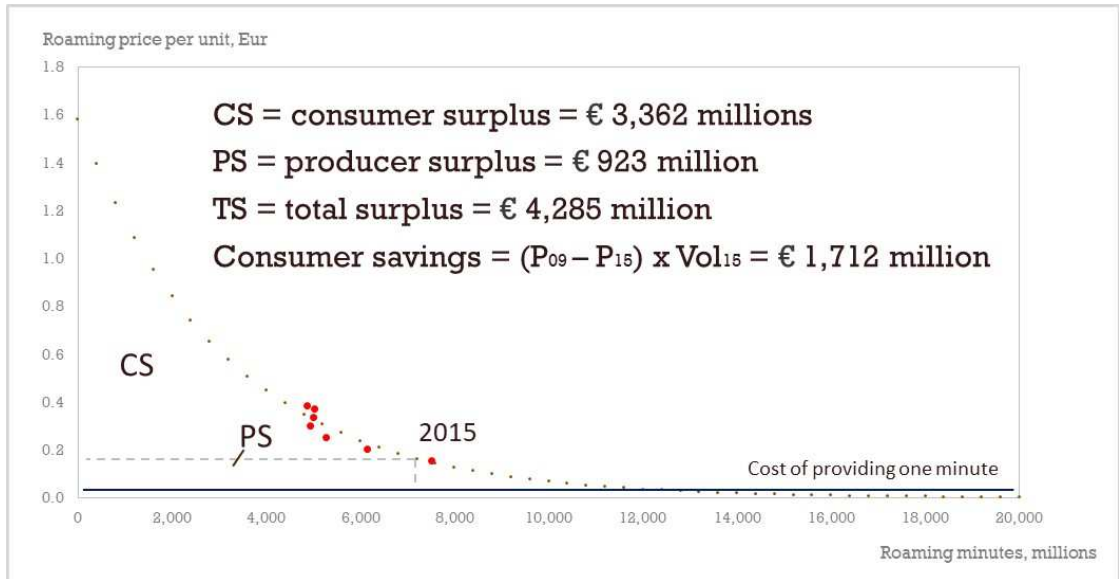


Source: BEREC reported data

The 2009 and 2015 prices were plugged into the constructed demand curve to compare the economic surpluses in the respective years. As the curve was downward sloping, the consumer surpluses were shaped triangularly; while the producer surpluses had a rectangular shape. Reduction in price yielded a 1.3 billion EUR (or 63%) gain in the consumer surplus, whereas the operators were worse off by 0.6 billion EUR constituting a 42% drop. The total surplus increased by 15%, which indicates that the regulatory interventions were largely beneficial to the overall economy empowering the ordinary roaming consumers to enjoy more service.

Figure 29. Economic surpluses in the market of outgoing roaming calls in 2009 and 2015

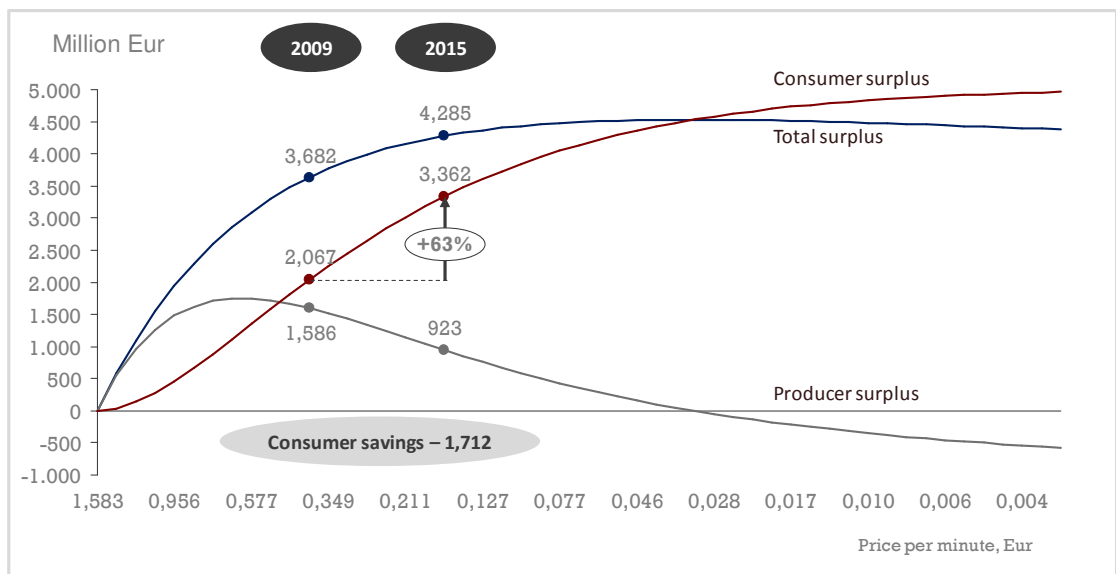




Source: Study Team's analysis

Rather than simply looking at the two points in time, Figure 30 below shows how the economic surpluses would vary or varied relatively to the prevailing market price. Providers would ideally charge the price at which they would have maximised their profit, thus attaining the peak of their surplus. At such relatively high price, the consumer surplus and, more importantly, the total surplus used to be comparatively low. The roaming regulation has forcefully driven down the price and consequently expanded the total surplus by a consequent growth of the consumer surplus. Consumers initially were very responsive to these reductions and then the rate of growth decelerated slightly as the market saturated. By 2015 the roaming market was operating nearly at the peak of the total surplus. This essentially means that any further reductions in price would mostly transfer the producer surplus to consumers rather than making substantial efficiency improvements in the market.

Figure 30. Relative changes in economic surpluses to the price for outgoing roaming calls

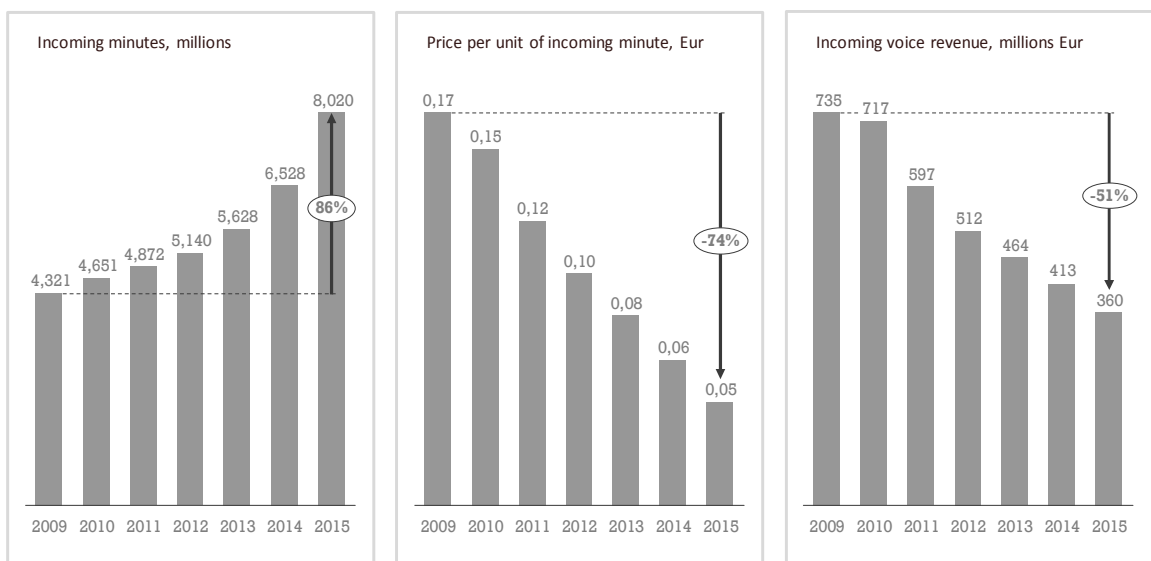


Source: Study Team's analysis

4.3.3.2.4 EVALUATION OF THE PRICE REDUCTIONS OF THE INCOMING ROAMING VOICE CALLS WITHIN THE EEA

As shown in Figure 31, comparable time series in the price and volume can be observed as well: while the price continued to decline steadily and linearly in manner, the volume curved upwards at an increasing rate and up to 8 billion minutes were received in 2015. Hypothetically, the total decrease in price of 0,12 EUR/min saved the consumers more than 1 billion EUR compared to their expenditure in 2015. The volume of the incoming calls, interestingly, was relatively responsive to the changes in price: as the price fell by 74%, the consequent growth in volume reached 86%. Even though the revenue halved between 2009 and 2015, the decline was relatively small compared to the drastic change in price.

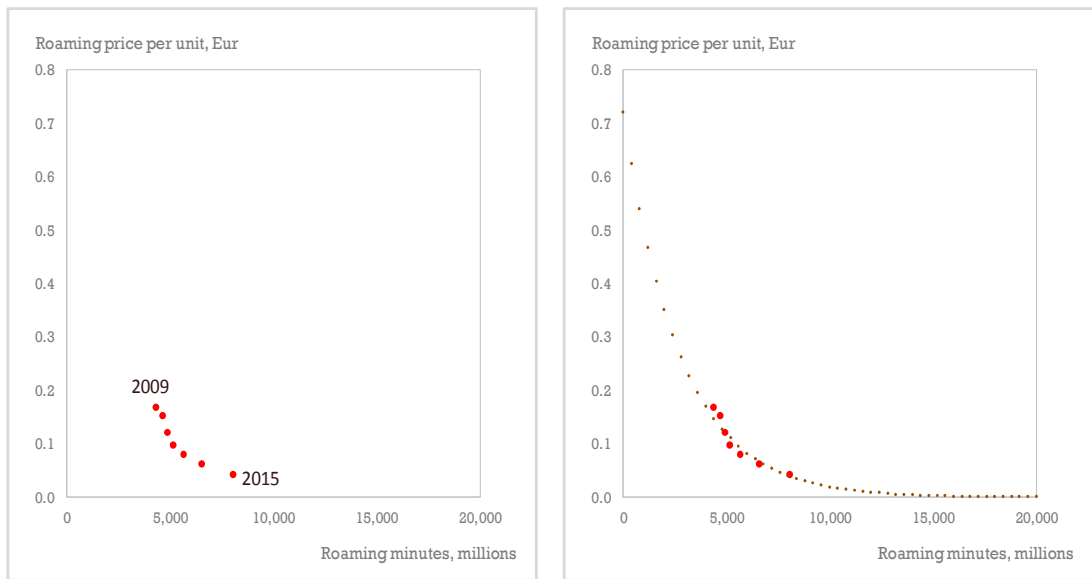
Figure 31. Time series in volume, price and revenue of incoming voice calls within the EEA



Source: BEREC reported data

The scatter plot shows a consistently negative correlation between price and volume. The data were tightly scattered around the curve meaning that the constructed demand was statistically significant for the EEA sample. The relatively flat slope of the curve supports the observation made above, that the changes in price triggered proportionally larger changes in volume.

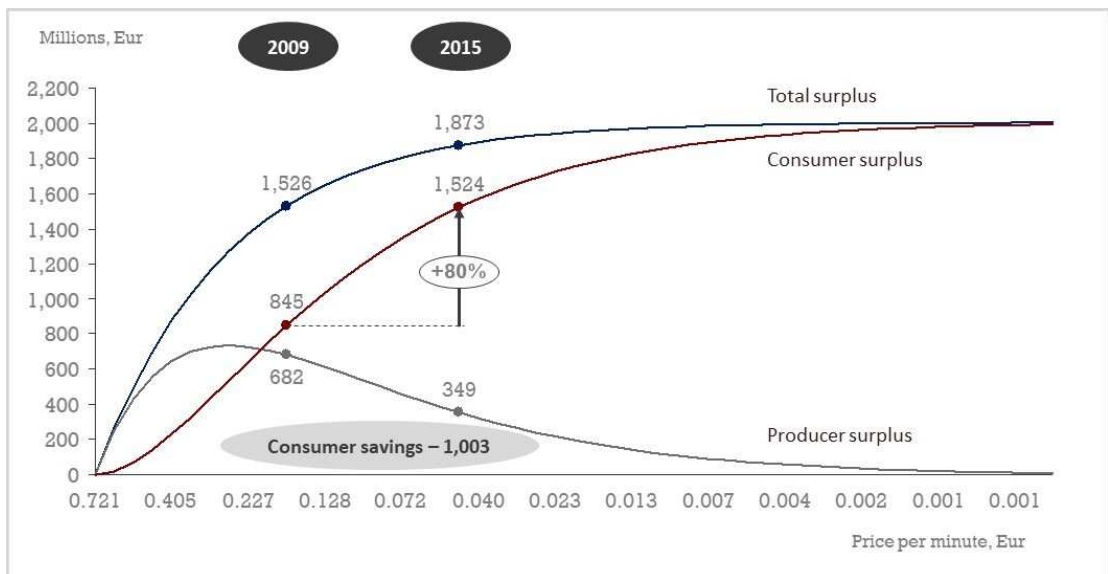
Figure 32. The actually observed data and the constructed demand of incoming roaming calls



Source: BEREC reported data

By constructing and comparing the economic surpluses in 2009 and 2015, it was found that an increase of 679 million EUR accrued to the consumer-side. Such an increase, albeit lower in value, was much larger proportionally than the growth of the consumer surplus for outgoing roaming calls (80% compared with 63%). This suggests that roaming consumers were more price-elastic when receiving rather than making the roaming voice calls. The producers, on the other hand, experienced a 49% drop in their surplus. Although a large share of the surplus they had lost due to lower prices had been transferred to consumers, they amortised their profit, to a limited extent, by the increased volume of sales. This enlarged market led to a 23% growth in the total surplus, hence the substantial efficiency improvements of the market.

Figure 33. Relative changes in economic surpluses to the price for incoming roaming calls



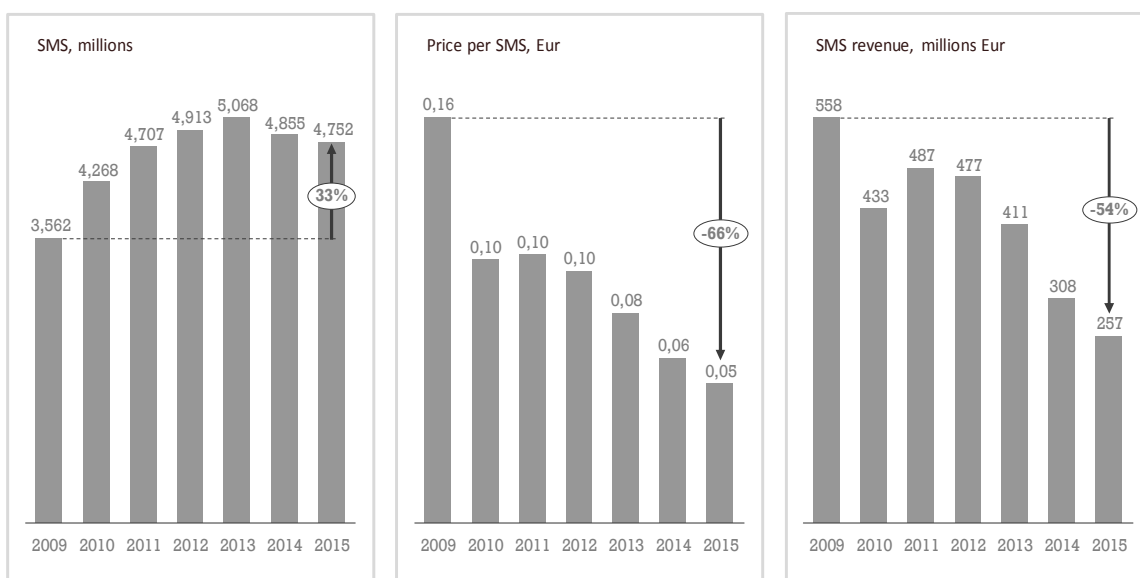
Source: Study Team's analysis

Similar relationships between the economic surpluses and the market price were observed as before. At the expense of the producer surplus, the reduced price has driven the consumer and thus the total surplus. Given the high volume of consumption, at the market price that prevailed in 2015, producers were still to make a moderate profit; any further price reduction would yield only minimal gains in the total surplus.

4.3.3.2.5 EVALUATION OF THE EFFECTIVE PRICE OF THE ROAMING SMS SERVICE WITHIN THE EEA

As shown in Figure 34, after the first and the steepest fall in 2010, the price nearly stalled for the next three years and then continued to decline gradually. Accordingly, the volume of the roaming SMS services sent increased between 2009-2013. It even continued to rise, though at a decelerating rate, when the price was not changing significantly, which was the extended price effect of the previous steep fall. Strangely, the volume peaked in 2013 and began to decline slowly despite reductions in price. Overall, the price fell by 0.11 EUR/SMS and thus yielded a half-billion EUR savings for the consumer. The revenues, on the other hand, fell by 0.3 million EUR during the same period. They recovered slightly in 2011 after the price fell during 2009-2010, but then continued to decrease again.

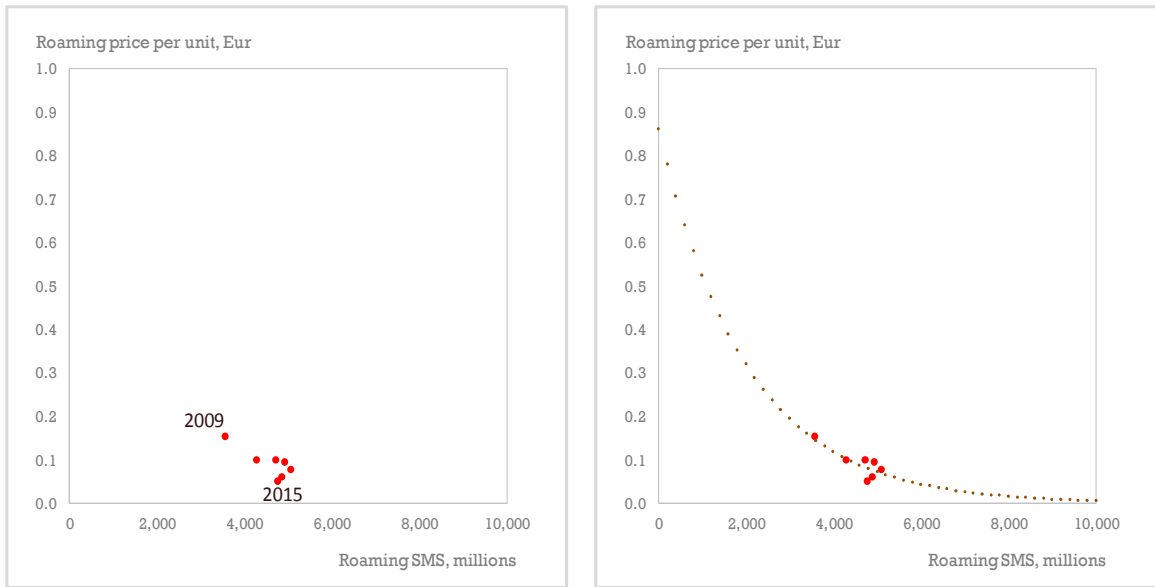
Figure 34. Time series in volume, price and revenue of roaming SMS service within the EEA



Source: BEREC reported data

The data scatter followed a peculiar s-shaped pattern, while the demand curve is consistently downward sloping. Since the regressed curve did not control for any other variables than the price, it may not necessarily reflect the realities in the actual market (despite, however, being statistically significant). As smartphones penetrate the European market, the tech-savvy consumers are increasingly connecting to social media, and the mobile applications are offering additionalities such as video calls or augmented reality. It would not be surprising if the Internet cannibalised conventional texting. To be consistent, however, to evaluate the economic surpluses, the constructed demand does not control for the roaming data consumption.

Figure 35. The actually observed data and the constructed demand of the roaming SMS service

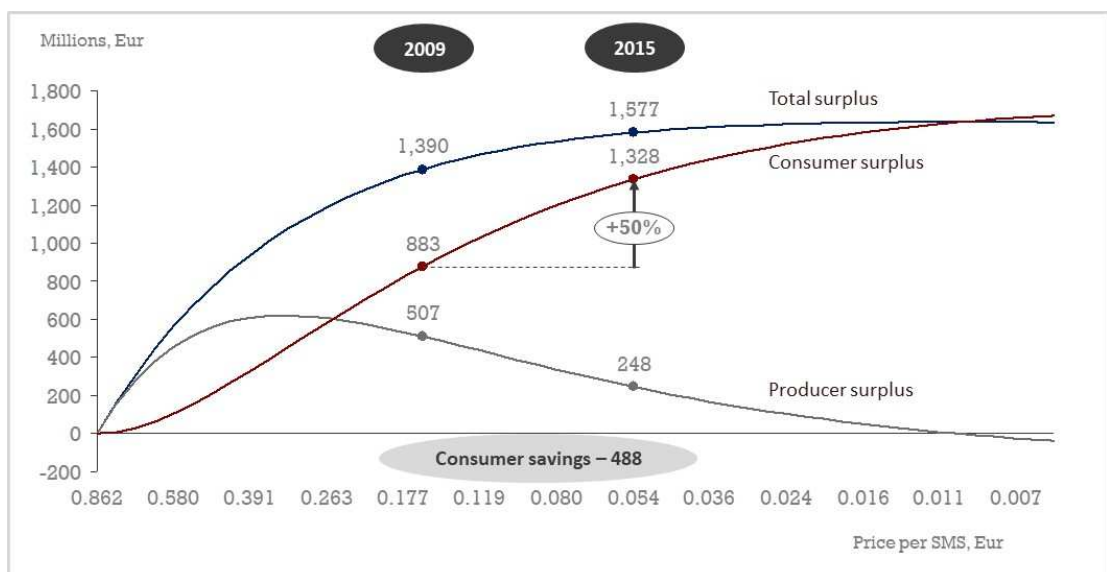


Source: BEREC reported data

Modelled economic surpluses in 2009 and 2015 show that the consumer surplus increased by 50%, whereas the producer surplus halved. These relative changes led to a 13% increase in the total surplus that was mainly felt by ordinary consumers. Yet, the size of these economic benefits could have been estimated wrongly if the constructed demand curve had inaccurately represented the actual demand.

Again, the variations in the economic surpluses due to different prices show that the regulations have successfully redistributed the market power from the producer to the consumer allowing a substantial market efficiency to be reached by 2015.

Figure 36. Relative changes in the economic surpluses to the price for roaming SMS service



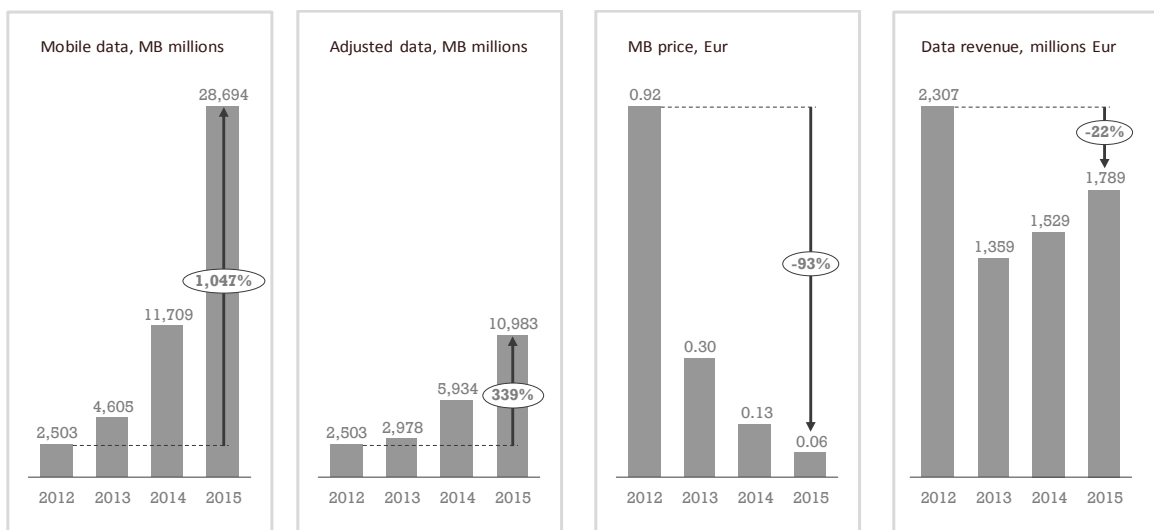
Source: Study Team's analysis

4.3.3.2.6 EVALUATION OF THE EFFECTIVE PRICE OF ROAMING DATA SERVICE WITHIN THE EEA

As shown in Figure 37, a 93% price fall was still marginal compared to a tenfold growth in volume and both consequently contributed to 22.5 billion EUR in savings for the consumer. Such a vast amount of roamed data allowed the market revenue to recover from its collapse in 2013, which occurred after the steepest fall in price. The usage of services then continued to climb gradually so that the difference in the revenue made in 2012 and in 2015 equalled 5 billion EUR (less than a fourth of what the consumers saved).

However, the “smartphone-native” population was generally consuming much more Internet than at any time before. To evaluate the net price effect, the behavioural change had to be controlled for. The volume was therefore adjusted by the general time trend of the data consumed domestically, which consequentially led to a threefold increase in volume from 2012 to 2015, still a spectacular growth. On the other hand, the price for data roaming was reduced to a very large extent within a very short regulatory timeline. This could have triggered an immediate reaction of the travelling consumers, who had been very careful when using data abroad. However, as an alternative method to estimate the time effect on data consumption was not available, the demand was constructed by using the adjusted volume variable to the domestic consumption.

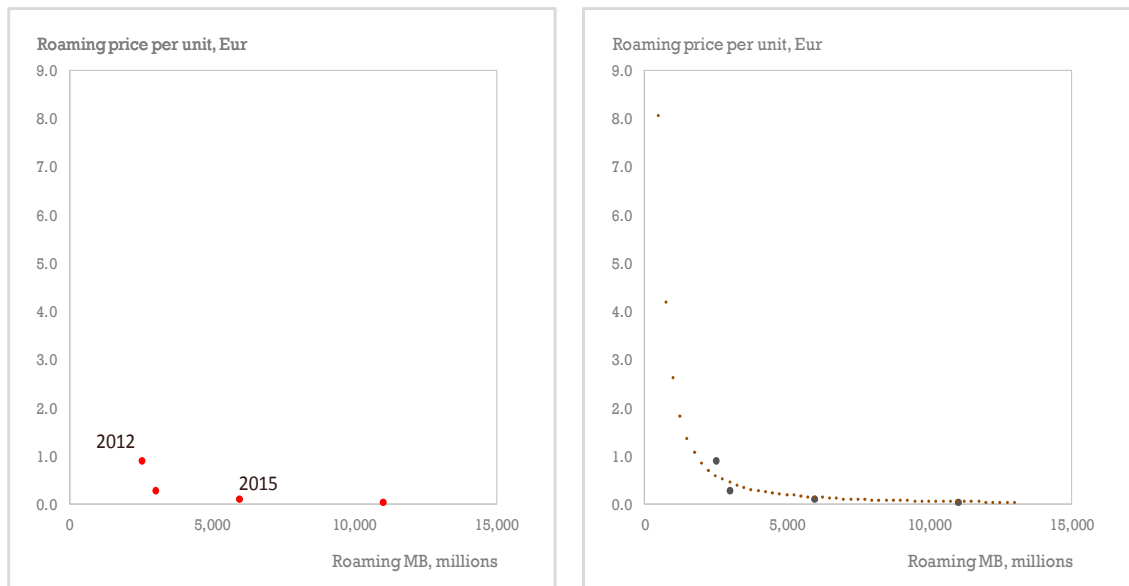
Figure 37. Time series in volume, price and revenue of roaming data service within the EEA



Source: BEREC reported data

It should be noted that the demand curve was constructed using a smaller sample than in the previous cases by taking four rather than seven data points, which may have jeopardised its validity. The R2 value of the exponential data fitting was comparatively low, but, alternatively, using the power regression would have yielded unjustified high prices at very low volumes. These prices never prevailed in the market and consequently the area of the consumer surplus would have been overestimated due to high price-intercepts.

Figure 38. The actually observed data and the constructed demand of the roaming data service

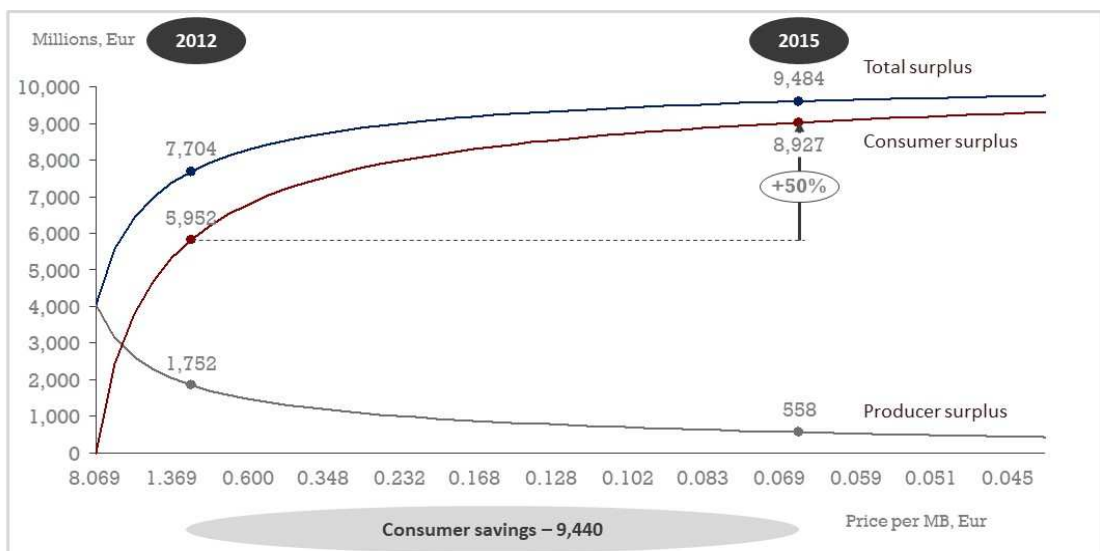


Source: BEREC reported data

As Figure 39 shows, in just three years, the consumer surplus grew by 50%, whereas the producer surplus dramatically fell by 68%. The story of the consumer surplus could however hide an interesting caveat. The price in 2015 was more than three times lower than the regulated cap, which could be the result of market activity rather than regulations. As the data services are relatively the most expensive services, the unit price for Internet services could have been used as a strategic tool to attract and retain deal-sensitive consumers. Although the purpose of the analysis was to measure the effect of the reduced price rather than the reasons, it shows the complexities of evaluating the relevant costs and benefits. However, the measured gain in the total surplus was estimated to be nearly 1.8 billion (equivalent to a 23% growth).

The development in roaming data prices not only increased the total surplus, but also resulted in consumer savings equal to almost 10 billion Euro.

Figure 39. Relative changes in the economic surpluses to the price for roaming data service



Source: Study Team's analysis

4.3.3.2.7 CONCLUSIONS

The regulatory interventions in the roaming services markets were overall beneficial to the EEA economies. Whereas the consumers' surplus differs from the hypothetical consumers' savings as it includes the effects of the changes in volume related to the changes in price, the loss in revenue is perhaps a better estimate of the effects on the producers' side than the producers' surplus, as the latter is largely based on the assumed cost curve. However, the measurable effects remain: the erosion in market revenue resulted above all in benefits for the data-roaming consumers and, to a lesser extent, in market growth and efficiency improvements. These favourable results should, however, be interpreted carefully since the estimated market impact may not necessarily be net from other price variables, as, for example, the volume of data used in roaming was likely affected by the general growth in Internet usage. The patterns of demand were also somewhat closely related as regards SMS services, whose effect on the market were estimated to be very slight. Albeit the regression between price and volume was negative, the actual data suggest that consumers were messaging less despite the falling price. That could be again explained by the other uncontrolled for variable – the substitution effect of the mobile messaging applications.

Additionally, the method itself had some limitations that are worth mentioning, since they could have underscored the validity of the results analysed. Firstly, the sample analysed was not exhaustive in the whole regulatory period: some regulations were introduced much earlier (in 2007) and the final reductions were only made in 2017. Secondly, the number of operators who submitted the required data for the aggregation varied with each data collection, which resulted in possibly deviating from the actual prevailing volumes within the EEA.

To sum up, the effect of the price reductions did have a substantial effect on increasing roaming demand, which shows that the service is highly valuable and needed. Moreover, after performing the analysis, one can see that the economy, measured as total surplus, has seen an increase.

4.3.4 RECOMMENDATIONS ON THE CHANGES TO BE MADE TO THE NATIONAL EAP LEGISLATIVE, INSTITUTIONAL AND REGULATORY STRUCTURES

In this section, relevant recommendations on the changes that should be implemented in the legislative, institutional and regulatory structures related to roaming regulation are provided.

As described under section 4.3.1, the EU regulatory framework has the unique capacity of directly imposing regulations on its Member States. In the EaP Countries, this central role should be attributed to the Regulatory Roaming Agreement. In this agreement the EaP Countries would commit to impose concurrently to their mobile operators a reduction of their international roaming tariffs. The RRA as explained under Section A will be ratified by the Parliaments of the EaP Countries. In the countries where a change to the telecommunications law is necessary, the ratification by the Parliament will have the effect of approving the reduction of roaming tariffs, which will allow the government to impose them. The amendments to the telecommunications law can be submitted to the Parliament either at the same time or at a later stage.

Suitable amendments to the national electronic communication acts of all and each EaP economy are also proposed to meet the obligations of the roaming policy to be implemented.

The analysis of the national legislative, institutional and regulatory structures of the EaP Countries has shown that, with the exception of Ukraine for national roaming, the EaP Countries do not provide a definition of roaming services in any part of their legislation or legal acts on telecommunications. The Study Team recommends that within the framework of the proposed changes the notion of international roaming services be introduced in all EaP Countries in a legally binding way, either through an amendment to national legislation on telecommunications or through administrative acts of competent Regulators or Ministries.

4.3.4.1 ARMENIA

The Armenian law provides that the Ministry develops and implements the development policy of the electronic communication sector and the Regulator carries out the regulation of the electronic communication sector.

The Regulator can decide upon a number of tariffs, but its powers are limited.

To ensure that a new roaming tariff could enter into force, the Study Team recommends that the Electronic Communications law is amended and clarified to allow the Regulator to implement the roaming price-caps defined in the RRA.

In view of their respective competences, the Ministry and the Regulator should work together to propose the necessary changes to the Electronic Communications law in Parliament.

4.3.4.2 AZERBAIJAN

To reduce roaming tariffs, changes to the current legislative framework will be necessary.

The Telecommunications law should be amended to cater for a reduction of roaming tariffs. In view of the current distribution of competences between the Ministry of Transport, Communications and High Technologies and the Tariff Council, it can be envisaged that the Ministry should be granted the powers to regulate wholesale roaming prices and the Tariff Council could continue to decide on the retail prices, its competence being extended to roaming tariffs.

However, dividing the decision on roaming tariffs between the two institutions could prove difficult to implement and would be time-consuming, especially in the light of the international commitments of Azerbaijan in relation to its RRA signatories. In addition, it would not help towards a greater convergence between Azerbaijani's regulatory framework and that of the other EaP Countries.

Therefore, the Study Team recommends several possible alternative solutions:

- the Telecommunications Law is amended to extend the competences of the Ministry of Transport, Communications and High Technologies to regulate retail and wholesale roaming prices;
- the legislation related to the Tariff Council is amended to include in its powers roaming prices regulations¹⁰⁶;
- the Telecommunications Law is amended to create an independent regulatory authority which would be in charge of implementing the RRA and of monitoring the application of its rules by the operators.

Finally, clear sanctioning powers should be granted to the institution that obtains the competences to reduce the roaming tariffs in order to ensure the efficiency of its policy.

4.3.4.3 BELARUS

Several alternatives could be envisaged:

a) In accordance with the Telecommunications Law and based upon a proposal from the Ministry of Communications, the President can promulgate a Presidential Decree determining that the roaming tariffs will be reduced;

b) Alternatively, the Council of Ministers could include roaming tariffs in the list of regulated prices services. Further to this decision, the Ministry of Antimonopoly and Trade will define the actual wholesale and retail tariffs to be applied, based upon recommendations from the Ministry of Communications;

The recommendations of the Ministry of Communications will need to define if and how the OAC should be involved and if the URDN wholesale prices applied to international roaming need to be adjusted;

c) Another alternative would be to amend the Telecommunications Law to create an independent regulatory authority who will be in charge of implementing the RRA and to monitor the application of its rules by the operators¹⁰⁷.

The simplest and the least time-consuming solution is b), as it does not require any change of law and is based on the existing powers of the relevant stakeholders.

4.3.4.4 GEORGIA

The Georgian Regulator does not have the power to decide upon tariffs outside of SMP regulations. To ensure that a new roaming tariff could enter into force, the Study Team recommends that the Electronic Communications law should be amended and clarified to allow the Regulator to implement the roaming price-caps defined in the RRA.

¹⁰⁶ Including Decree N° 341 of 26 December 2005 related to the Tariff Council of the Republic of Azerbaijan

¹⁰⁷ This solution is currently not favoured as there is a policy to reduce the number of agencies and entities in the Republic of Belarus.

4.3.4.5 MOLDOVA

In Moldova, neither the Ministry of Economy and Infrastructure, nor the Regulator ANRCETI have the competences to decide upon a reduction of roaming tariffs. Accordingly, one of them should have such powers and this would require the amendment of the existing Electronic Communications Act.

The Ministry however can coordinate international activity in electronic communications and launch a legislative initiative.

Thus, the Study Team recommends that, further to the signature of the RRA, the Ministry, which has the right to initiate legislative activity, might propose to the Council of Ministers to bring amendments to the Electronic Communications Act in order to grant to the Regulator the powers to impose roaming price-caps and monitor their implementation.

4.3.4.6 UKRAINE

The Ukrainian Regulator does not have the authority to regulate and/or reduce tariffs for roaming services. The State Service for Special Communications and Information Protection of Ukraine can only develop proposals on state policy in the telecommunications sector. Thus, a change of legislation would be required.

The current Telecommunications Law will need to be amended by the Parliament to grant to the Regulator the powers to impose the necessary reductions in roaming tariffs and monitor their implementation by the operators.

Therefore, the Study Team recommends that the necessary amendments to the Telecommunications Law should be proposed to the Parliament.

4.3.5 SAFEGUARD ISSUES

In the light of the *Amended EU Roaming regulation model* proposed in Section 4.4.1 the Study Team considers that safeguard measures will not be necessary to prevent abusive uses by customers. Indeed, although the model proposes much lower tariffs than the current ones, it will still represent a higher cost to the users than what they usually pay at home. It is unlikely therefore that they will abuse the system.

4.3.6 GAP ANALYSIS BETWEEN EU REGULATION AND THE EaP COUNTRIES' ROAMING POLICIES

In this section, the EU Roaming regulations are analysed and the main EU obligations that are considered relevant to the EaP Countries' regulatory frameworks are listed in the left column. In the right column a general evaluation of the corresponding EaP obligations is provided, based on information supplied to the Study Team by the REWG representatives, to show its gap with the EU regulation.

Only the EU Roaming Regulation 717/2007 is analysed in depth, as it contains some elements of comparison and differentiation from the EaP Countries' regulatory frameworks.

OBLIGATIONS FROM EU ROAMING REGULATION OF RELEVANCE FOR EaP COUNTRIES	GAP BETWEEN EaP AND EU OBLIGATIONS
The Regulation 717/2007/EC on roaming on public mobile telephone networks provides that	In the telecommunications laws of the EaP Countries
The NRAs should take specific measures in relation to roaming and should not be limited to the sphere of intervention of SMP regulations	The telecommunications laws in Armenia, Georgia, Moldova and Ukraine do not allow the Regulator to take specific measures in relation to roaming and limit the Regulator's sphere of intervention to SMP regulations. The Ministries in Azerbaijan and Belarus have, likewise, limited powers of intervention.
Roaming services tariffs should not be defined by commercial agreements alone	Most EaP Countries regulations do not address the question or provide that roaming services tariffs should be defined by commercial agreements alone
NRAs should impose obligations at both retail and wholesale level to protect the interests of roaming customers	Regulators cannot impose obligations at both retail and wholesale level to protect the interests of roaming customers outside of SMP regulations in AM, GE, MD and UA. Ministries in AZ and BE are also restricted.
The NRAs should monitor and supervise compliance with the Regulation within their territory	In all EaP Countries the Regulator (or Ministry) does not have the authority to monitor and supervise compliance with the roaming regulation within its territory as in fact there is no regulation pertaining to international roaming.
The NRAs should have the power to: - require mobile operators to supply all information relevant to the implementation and enforcement of the roaming regulations - require the immediate cessation of an infringement to the roaming regulations - implement penalties applicable to infringements of the roaming regulations	In the absence of a roaming regulation, the Regulators do not have any of these powers.
The Regulation proposes to adopt a roaming regulatory approach which is: - simple to implement and monitor to minimise the administrative burden both for the operators and for the national regulatory authorities charged with its supervision and enforcement. - transparent and immediately understandable to all mobile customers within the EaP. - provides certainty and predictability to operators providing wholesale and retail roaming services	In the absence of a roaming regulation, the EaP Countries do not have a roaming regulatory approach.

EU ROAMING REGULATION	EU OBLIGATION OF RELEVANCE TO EaP	GAP BETWEEN EaP AND EU OBLIGATIONS
544/2009/EU	Extended regulation 2007 to the Euro-SMS tariffs	No regulation in the EaP provide for SMS tariffs

EU OBLIGATION OF RELEVANCE TO EaP	GAP BETWEEN EaP AND EU OBLIGATIONS
Regulation 531/2012/EU introduces a common approach to ensure that users of public mobile communications networks, when travelling within the Union, do not pay excessive prices for Union-wide roaming services in comparison with competitive national prices, when making calls and receiving calls, when sending and receiving SMS messages and when using packet switched data communication services	In the absence of a roaming regulation, there is no common approach on roaming amongst the EaP Countries
Lays down rules to enable the separate sale of regulated roaming services from domestic mobile communications services and sets out the conditions for wholesale access to public mobile communications networks for the purpose of providing regulated roaming services.	The EaP regulatory frameworks do not provide for the separate sale of regulated roaming services. No conditions are provided for wholesale access to public mobile communications networks as international roaming is considered a commercial agreement between parties.
It also lays down transitory rules on the charges that may be levied by roaming providers for the provision of regulated roaming services for voice calls and SMS messages originating and terminating within the Union and for packet switched data communication services used by roaming customers while roaming on a mobile communications network within the Union. It applies both to charges levied by network operators at wholesale level and to charges levied by roaming providers at retail level.	There are no rules on the charges to be levied by roaming providers in the EaP Countries.
	Although there are no common rules on transparency, all EaP Countries impose rules on their operators for the transparency of their services and these include roaming.

EU ROAMING REGULATION	EU OBLIGATION RELEVANT TO EaP	GAP BETWEEN EaP AND EU OBLIGATIONS
2015/2120/EU	Roam-Like-At-Home principle	This principle does not exist in the EaP regulatory frameworks

EU ROAMING REGULATION	EU OBLIGATION	GAP BETWEEN EaP AND EU OBLIGATIONS
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	RELEVANT TO EaP	
920/2017/EU	Lowered wholesale prices and enabled the introduction of RLAH from 15 June 2017	The EaP authorities do not have the power to reduce prices in the EaP regulatory frameworks

4.3.7 CAPACITY BUILDING METHODOLOGIES FOR REGULATORS AND LINE MINISTRIES

As discussed in point 3.3. of the section on Methodological approach, the EaP Regulators' capacity building needs were difficult to evaluate. In this section, the Study Team presents as an example the analysis of two EU Regulators on how they use their resources for roaming-related tasks and their numbers and types. The Regulators are not identified for confidentiality reasons.

EU Regulator 1

Regulator 1 does not have a separate roaming department. However, it has staff resources dedicated part-time to roaming issues, whose functions and numbers are: one economist adviser of the division, one jurist head of the division and four more jurists as chief specialists. They all work under a deputy director of one or more departments.

Their activities are as follows. The times devoted to these activities are indicated as a percentage of the total annual work time:

- A deputy director of department manages and controls the roaming regulation activities (1%), participates in meetings with service providers to explain the roaming regulation and prepares answers for the public media (0.5%);
- A jurist head of division participates in meetings with service providers and end-users to explain the roaming regulation, prepares and publishes FAQ, prepares answers for the public media (20%) and analyses and resolves customer complaints (5%);
- An economist division adviser collects data, prepares reports on benchmarking, transparency and comparability reports, as well as questionnaires related to wholesale roaming prices (25%); resolves disputes between operators (wholesale roaming access) (5%); analyses and resolves customer complaints (15%); drafts documents for BEREC, presents new regulations to operators (25%); monitors and enforces regulation by consulting operators, prepares official letters in order to ensure compliance with regulation (25%);
- Two jurist chief specialists analyse and resolve customer complaints (30%);
- One jurist chief specialist provides consultations regarding legal issues on roaming regulation (review or official letters to ensure their compliance with the law) (10%);

□ One jurist chief specialist is responsible for the transposition of roaming regulation into national legislation (1%).

The times budgeted by Regulator 1 refer to work days of 8 hours each, 5 working days per week and 47 working weeks per year.

Based on the above, the Study Team calculates that the resources employed by Regulator 1 in roaming-related activities have a total work load of 1.6 person/year.

The Table detailing these elements is included in Annex 1.

EU Regulator 2

Regulator 2 employs a six-member Roaming Team to carry out roaming-related activities: three engineers, one of which is the team leader, two lawyers and one specialist in customer relationships.

The team's activities are as follows. For each activity, Regulator 2 has indicated the yearly budgeted number of working days, distributed among the staff member according to their competences.

- Data collection and preparation of reports (Benchmarking reports, Transparency and comparability reports, Other questionnaires related to wholesale roaming prices) – 68 working days per year
- Dispute resolution between operators (Dispute resolution between operators regarding wholesale roaming access) – 13 working days per year
- Analysis and resolution of customer complaints – 32 working days per year
- Drafting of documents and presentations (Drafting of documents at BEREC, Presentation of new regulation to operators) – 118 working days per year
- Monitoring and enforcement of regulation (Consultation of operators) – 8 working days per year
- Meetings with service providers and end-users to explain roaming regulation, preparation and publication of FAQ – 43 working days per year
- Consultation for legal issues on roaming regulation (review or official letters) – 7 working days per year
- Transposition of RRA into national legislation – 1.2 working days per year
- Management and control of roaming regulation activities – 5 working days per year
- Preparation of answers to public media (Answer to e-mail, Publication on official web, TV and Radio) – 97,8 working days per year

The total number of budgeted working days is 393. Based on the average number of working days per year indicated by Regulator 2, this translates approximately into a total work load of 1.78 persons per year needed to run the Regulator 2's roaming department.

The Table detailing these elements is included in Annex 2.

The two results are very similar. This provides a first general estimate of the resources needed to manage regulatory roaming activities. However, these estimates do not take into account the ramp-up period and the training of the staff when necessary.

4.4 COST-BENEFIT ANALYSIS OF POSSIBLE INTERVENTION SCHEMES IN ROAMING REGULATION IN THE EAP COUNTRIES

The following section presents three possible regulation models for roaming services and their evaluation. Further on, a quantification of recommended roaming regulation models is presented, which includes a summarised analysis of the effect of the intervention on consumers, mobile operators and the general economy. Summarised results are presented for each country and service, while a quantification of the effects for each of the origin/destination relation is included in Annex 5.

After completion of EaP market and best practices analysis, three roaming regulation alternatives are proposed:

EU Roaming regulation model – based on the EU Roaming regulation, which would regulate wholesale rates (setting them at the same level as in the EU) and eliminate retail roaming tariffs through a Roam-Like-At-Home (RLAH) model.

Amended EU Roaming regulation model – partially based on the EU Roaming regulation, which would regulate wholesale rates (setting them at the same level as in the EU) and set the retail rates equal to RLAH rates and charge to wholesale rate on top.

Clear wholesale and retail rates model – based on a detailed costing study to establish specific EaP rates for wholesale and retail tariffs.

The Study Team evaluated these models based on five criteria:

- Ease of implementation;
- Regulatory fit;
- Impact on customers;
- Impact to operators;
- Future perspective.

4.4.1 EVALUATION OF POSSIBLE INTERVENTION SCHEMES

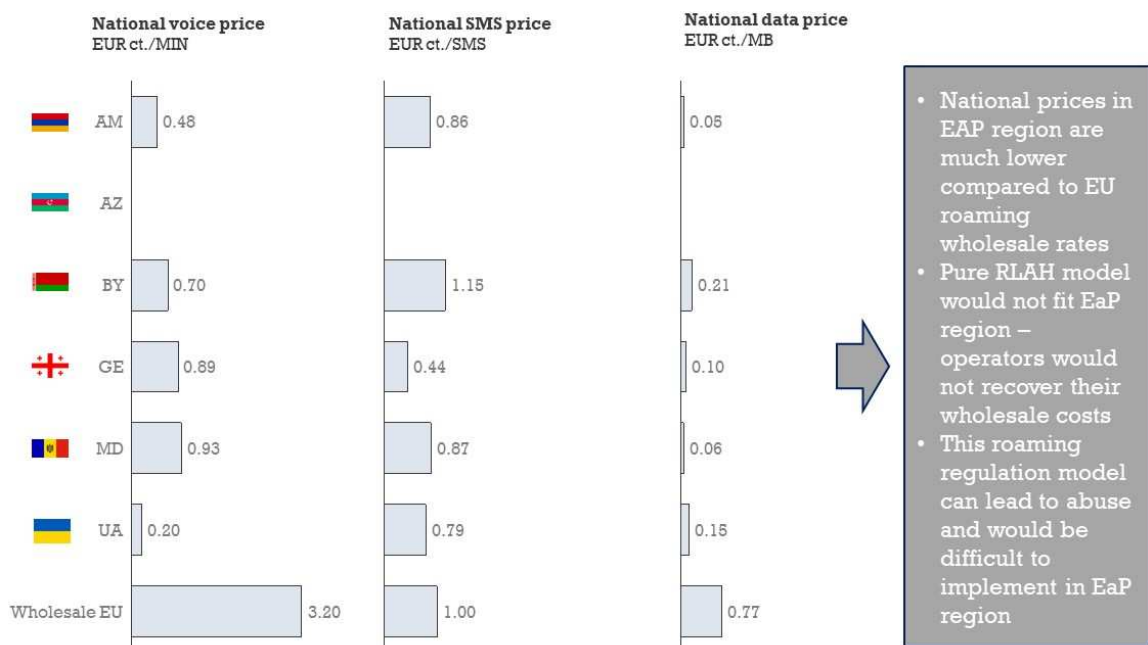
EU Roaming regulation model.

Across the EaP area, wholesale prices would be the same as the EU RLAH model: 3.2 EUR/Cent per outgoing voice minute, 1 EUR/Cent per outgoing SMS and 0.77 EUR/Cent per MB¹⁰⁸. A roaming customer would be charged for voice, SMS and data services as domestically.

Ease of implementation. This model would be straightforward to implement as the EaP Countries could apply the EU model as well as its rules, rates and principles when regulating roaming prices within the region. In addition, the EU has already conducted studies on the fair level of wholesale rates and has already in place rules to avoid abusive roaming practices, which can be also be applied by EaP Countries.

Regulatory fit. This model as shown in Figure 40, might be problematic from the regulatory perspective. As presented in Figure 40, national prices for voice, SMS and data in EaP countries are much lower compared to current EU wholesale rates for voice, SMS and data. The EU voice wholesale tariff is 4 to 5 times higher than EaP domestic rates, EU wholesale data prices are 5 to 15 times higher. Economic theory suggests that the optimal outcome in the market is achieved when retail prices are slightly higher than or close to marginal costs (in this case close to wholesale rates). Deviations from this principle require intervention. Given such difference in retail and wholesale rates the model would imply a major economic burden for mobile operators so that they might not be willing to provide roaming services under such a scenario. Operators might even choose to switch off roaming services, as their revenue would not cover the costs.

Figure 40. National prices in EaP and EU wholesale cost comparison – Model 1



Source: Data provided by the operators

¹⁰⁸ Regulation 920/2017/EU sets that 0.77 EUR/Cent per MB is applied until 1 January 2018 and a charge of 0.60 EUR/Cent per MB would be applied from 1 January 2018. Additional reductions are foreseen on 1 January 2019, 2020 and 2021.

Impact on customers. This model would result in the best possible outcome for customers. They would be able to enjoy very low prices, usage would increase significantly, and consumer surplus would be maximum.

Impact on operators. The operators would face a major economic burden. As discussed, wholesale voice prices would be 4 to 5 times higher than retail rates, wholesale data prices would be 5 to 15 times larger compared to retail rates. Operators might not be willing to provide roaming services and might choose to switch them off to avoid negative profit margins.

Future perspective. This regulation model would be fully aligned to EU roaming rules. Thus, it would be easier for EaP countries to extend the roaming regulation model to include EU countries if they chose to do so in the future. As discussed in the previous sections, roaming in the EU countries constitutes about 50% of all EaP roaming traffic. Thus, the greatest benefit would be achieved if the EaP roaming regulation were to comprise the EU region.

Summing up, this model would fully allow to capitalize on EU knowledge and include wholesale rates and retail rates. This would ensure an easier integration with the EU in the future. However, the model would open doors for possible abuse as current local retail rates would be much lower than the wholesale rates. The model would give the greatest benefit to customers but might not be fair from the mobile operators' perspective as they might not be able to recover their wholesale costs.

Amended EU Roaming regulation model.

According to this model wholesale and retail prices would be set in line with the EU regulation level: 3.2 EUR/Cent per outgoing voice minute, 1 EUR/Cent per outgoing SMS and 0.77 EUR/Cent per MB¹⁰⁹. Retail prices would be set according to the formula: wholesale roaming rates plus domestic rates. In this case, a customer would be charged for roaming services the same rates as the domestic rates, plus a surcharge equal to the EU wholesale rate.

Ease of implementation. This model would also be relatively easy to implement. Wholesale rates would be set at the exact same level as in the EU. Retail prices would retain the same principle as in the RLAH model, but wholesale costs would be charged additionally.

Regulatory fit. This model would be based on best practices from the regulatory perspective. Retail prices would be slightly higher than wholesale prices as shown in figure 41.

¹⁰⁹ Regulation 920/2017/EU sets that 0.77 EUR/Cent per MB is applied until 1 January 2018 and a charge of 0.60 EUR/Cent per MB would be applied from 1 January 2018. Additional reductions are foreseen on 1 January 2019, 2020 and 2021.

Figure 41. National prices in EaP and EU wholesale cost comparison – Model 2



Source: Data provided by the operators

Impact on customers. Customers would enjoy real benefits under this model. Roaming voice prices would be expected to decrease 10 to 20 times, SMS prices by 10 to 15 times, and data by 30 to 70 times depending on the country. The decline would not be as large as in the previous model. However, customers would feel a significantly positive impact.

Impact on operators. This model would balance the interests of customers and operators. Roaming prices would decline, with a negative effect on the operators' financial results. Usage of roaming services would increase, partly compensating the lost revenue. However, the overall effect on revenue would likely be negative. Retail prices would be higher than wholesale prices in all circumstances, therefore, not creating too large a burden for the operators compared to the first model.

Future perspective. This model would be close to the EU regulation model. Wholesale rates would be fully compatible with EU tariffs. Retail rates would be similar to EU rates as the EU allows countries with low domestic prices to have surcharges for roaming services. In this case all EaP countries should benefit from a similar exception. Thus, the model would be relatively easy to extend to the EU, should the EaP Countries decide to do so in the future.

Summing up, this model would be based on elements from the EU roaming model such as the same wholesale rates. It would create the conditions for closer harmonisation with the EU roaming market in the future and ensure that retail tariffs fully cover costs, which makes it a better model from a regulatory perspective also balancing the interests of customers and operators.

EaP specific model with clear wholesale and retail rates model.

The model would be customized to meet EaP market realities. According to this model, specific EaP wholesale and retail rates would be introduced for roaming services

Ease of implementation. It would take relatively more time to implement this model. First of all, the EaP Countries would need to conduct dedicated studies to define fair and justified wholesale and retail rates which would be relevant for the EaP area, taking into consideration the particularities of each national market. Regulators would need to develop a costing model considering all EaP costs and tariffs. It might take 1 to 2 years to develop such models and agree on the tariff levels. Implementation of the roaming regulation would probably be delayed.

Regulatory fit. From the regulatory perspective, this model would best fit the EaP area's realities. Economic theory says that the optimal outcome in the market is achieved when tariffs equal marginal costs. The EaP-specific cost model would probably establish the fairest roaming tariffs from the regulatory perspective as it would take into consideration the particularities of each EaP market. From a practical perspective, it is worth mentioning that the envisaged tariffs might not be much different from the current EU ones. Hence, the necessity to develop a separate costing model for the EaP area is not high.

Customer impact. This regulation model should result in lower roaming prices. However, they might not be much lower than the first model. Customers would feel a significant impact and would be able to use roaming services more freely.

Operator impact. Lower roaming prices would result in less revenue for the operators. However, as retail prices would be higher than wholesale prices, the operators would not be much affected and would have no incentive to discontinue roaming services.

Future perspective. This would be a completely different model from the EU regulation. Therefore, it would be more difficult for the EaP Countries to extend their roaming tariff to the EU area if they chose to do so in the future. Since, as discussed, the maximum benefit for the EaP Countries would be reached by such an extension, this objective would not be easily achieved with this model.

Summing up, this model would be customized to the EaP market realities, which would make it convenient from a regulatory implementation perspective, as prices would cover the operators' costs. However, it could take time to customize wholesale and retail rates and be more difficult to harmonize with the EU regulation model in the future.

The table below summarizes the 3 regulation models.

Table 6. Evaluation summary (max score 5, min score 1)

Criteria	EU model	Amended EU model	EaP specific model
Implementation	5	5	2
Regulatory fit	1	4	5
Customer impact	5	3	3
Operator impact	1	5	5
Future perspective	5	5	3
Total	17	22	18
Ranking	3rd	1st	2nd

Taking into account the five factors discussed in the chapter, the *Amended EU roaming regulation model* is the recommended model for the regulation roaming prices.

4.4.2 SUGGESTED TIMELINE FOR PRICE REDUCTION

Table 7, Table 8 and Table 9 below show the timeline that would allow full implementation of the *Amended EU Regulatory roaming model* over five years, while ensuring a coherent decrease of roaming charges and giving the operators time to adjust accordingly. The suggested timeline for wholesale charges (Table 7) in Year 1 would start with the current lowest wholesale price observed within EaP countries. Prices would reach EU wholesale roaming prices of 2017 in Year 4 and would further decrease to the then-new EU wholesale roaming rate in Year 5. Retail roaming charges (Table 8) are set with a 50% mark-up from wholesale cost and would gradually move in Year 5 to the then-current wholesale level, plus the effective national price applied at that time. Table 9 presents recommendations on international mobile termination rates (MTR), which gradually decrease towards average MTR in the EU. Table 10 presents recommendations on the billing interval of roaming services.

Table 7. Recommended timeline for wholesale roaming charges reduction

	Now	Year 1	Year 2	Year 3	Year 4	Year 5
Voice out (EUR ct per min)	16.5 – 53.0	16.5	10.0	6.0	3.2	New EU rate
Voice in (EUR ct per min)	1.0 – 13.0	1.0	1.0	1.0	1.0	New EU rate
SMS (EUR ct per SMS)	4.0 – 6.5	4.0	3.0	2.0	1.0	New EU rate
Data (EUR per GB)	96.0 – 208.0	96.0	50.0	25.0	7.7	New EU rate

Source: Study Team

Table 8. Recommended timeline for retail roaming charges reduction

	Now	Year 1	Year 2	Year 3	Year 4	Year 5
Voice out (EUR ct per min)	39.0 – 53.0	24.8	15.0	9.0	4.8	Wholesale + national
Voice in (EUR ct per min)	14.0 – 53.0	1.5	1.5	1.5	1.5	Wholesale + national
SMS (EUR ct per SMS)	7.5 – 17.0	7.5	4.5	3.0	1.5	Wholesale + national
Data (EUR per GB)	137.0 – 1,350.0	137.0	75.0	37.5	11.6	Wholesale + national

Source: Study Team

Table 9. Recommended timeline for international termination charges (MTR) reduction

	Now	Year 1	Year 2	Year 3	Year 4	Year 5
Voice out (EUR ct per min)	12.0 – 24.1	12.0	8.0	4.0	1.0	New EU average rate

Source: Study Team

Table 10. Recommended billing interval of roaming services

	Recommended billing interval
Voice out	Seconds
Voice in	Seconds
SMS	SMS
Data	Kilobytes

Source: Study Team

4.4.3 POTENTIAL BENEFITS FOR THE SOCIETY OF ROAMING CHARGES REDUCTION AND FINANCIAL CONSEQUENCES FOR THE OPERATORS

In this section, the financial impact is calculated for the application of the Amended EU Roaming regulation model. As discussed before this regulation model would result in the following retail and wholesale rates:

Figure 42. National prices in EaP and EU wholesale cost comparison – Model 2



Source: Created by authors

Its financial impact is estimated for the year 5 when the suggested roaming rates have been fully applied.

The effects of the decrease in roaming charges were assessed as follows:

1. The current EaP market situation was analysed. The collected data were used to determine the actual current prices of roaming services and their relationship to volume.
2. Supply and demand models were built. A model of roaming services was built for each destination in order to estimate the expected increase in volume due to price reduction. An EU roaming analysis was used to determine the effect.
3. Quantification of the price reduction effect. Consumers' and producers' surpluses were calculated. Section 4.3 reports a detailed methodological description.

The following tables show the output of the model, per service and per country. Detailed results by roaming destination are presented in Annex 5.

Table 11. Effects of a decrease in roaming service prices (increase in roaming services volume, %)

Country	Voice Out	Voice In	SMS	Data
Armenia	81%	195%	19%	620%
Azerbaijan				
Belarus	257%	291%	19%	2108%
Georgia	500%	288%	100%	674%
Moldova				
Ukraine	263%	1806%	217%	1588%

Source: Study Team's analysis

Table 12. Effects of a decrease in roaming service prices (change in total surplus, mEUR)

Country	Voice Out	Voice In	SMS	Data	Total
Armenia	0.27	0.69	0.00	0.46	1.42
Azerbaijan					
Belarus	1.55	0.79	0.02	7.36	9.73
Georgia	0.86	0.29	0.02	0.25	1.42
Moldova					
Ukraine	0.88	11.93	0.24	6.97	20.02
Total	3.55	13.70	0.28	15.05	32.59

Source: Study Team's analysis

Table 13. Effects of a decrease in roaming service prices (change in consumer savings, mEUR)

Country	Voice Out	Voice In	SMS	Data	Total
Armenia	0.59	1.05	0.03	0.54	2.20
Azerbaijan					
Belarus	2.14	1.06	0.10	7.74	11.04
Georgia	1.13	0.48	0.07	0.31	2.00
Moldova					
Ukraine	1.94	13.32	0.62	8.14	24.02
Total	5.80	15.90	0.82	16.73	39.25

Source: Study Team's analysis

Table 14. Effects of a decrease in roaming service prices (change in operators' surplus, mEUR)

Country	Voice Out	Voice In	SMS	Data	Total
Armenia	-0.32	-0.35	-0.03	-0.07	-0.78
Azerbaijan					
Belarus	-0.59	-0.27	-0.08	0.38	-1.32
Georgia	-0.28	-0.18	-0.05	-0.06	-0.58
Moldova					
Ukraine	-1.06	-1.39	-0.38	-1.16	-4.00
Total	-2.25	-2.20	-0.54	-1.68	-6.67

Source: Study Team's analysis

Once roaming prices are reduced to the levels recommended in Figure 42 the following effects are expected. Outgoing roaming voice traffic should increase 1 time in Armenia, 2.5 times in Belarus, 5 times in Georgia and 2.5 times in Ukraine. Roaming SMS traffic is expected to increase 1 time in Georgia, 2 times in Ukraine and only slightly in Armenia and Belarus. Roaming data traffic is expected to increase 6 times in Armenia, 21 time in Belarus, 6 times in Georgia, 15 times in Ukraine. The data growth forecast refers only to the price effect. It does not take into account that data traffic is expected to grow from 30 to 50% every year (global forecast). Thus, the final data traffic growth should be much higher. Operators will feel a negative revenue impact. However, this will be relatively small compared to their overall revenue and will be partially offset by a strong growth in traffic. According to the above calculations, the Armenian operators are expected to lose less than one million EUR per year, Belarus above one million EUR, Georgia about half a million EUR, and Ukraine

around 4 million EUR. The total operator revenue loss for these four countries might be almost 7 million EUR per year. 7 million EUR would directly impact their profitability; thus, EBITDA and net profit should also be lower by the equivalent of 7 million. This amount represents less than 0.5% of the revenues of the mobile operators in EaP region, thus it is assumed that the roaming price reduction will not increase the prices of local services. Customer savings would be much higher, totalling almost 40 million EUR across the four EaP countries. This is a case of a positive intervention by the regulator – customer benefit is much higher compared to the loss incurred by the operators.

The international call termination service is an important component of the wholesale cost, as it impacts several roaming services: incoming calls, calls to the home country networks, calls to the visited country networks and to other EaP countries. The international termination rates are high in all EaP countries. Thus, international voice and SMS termination rates reductions for roaming traffic are needed to ensure that the roaming wholesale tariff reductions among EaP Countries are effective.

As full information was not made available to the Study Team at the operators' level, it has not been possible to assess the effects in each country from the changes in wholesale roaming costs and the reduction of international mobile interconnect tariffs. However, the overall effect of the wholesale tariff changes in the six EaP Countries will amount to zero. Nevertheless, there could be positive or negative financial consequences for some individual countries or operators.

4.5 RECOMMENDATIONS FOR A REGIONAL ROAMING AGREEMENT (RRA)

4.5.1 STRUCTURE AND PROVISIONS OF THE RRA

Based on the Western Balkans' RRA, discussions held with representatives from the REWG and comments received, the Study Team proposes to include the following elements in the Regional Roaming Agreement for EaP Countries:

4.5.1.1 MINIMUM REQUIREMENTS

- The names and titles of the representatives who have the proxy to sign the agreement on behalf of their countries (the signatories)
- A common language should be agreed upon for the agreement. As the REWG's working language is English, it would be convenient to use the English language for the text of the RRA;
- A preamble describing the objectives that the signatories wish to fulfil by signing the agreement such as: promoting a common and concurrent set of policies to substantially reduce roaming charges in Armenia, Azerbaijan, Belarus, Georgia, Moldova and Ukraine in order to alleviate citizens' expenses when travelling abroad, balancing this with the operators' interests, with the long-term objective of expanding these policies to include European Union citizens and allowing EaP citizens to benefit from the EU roaming policies;
- The preamble should also define whether the signatories wish to restrict the agreement to the themselves or to extend it to third parties;

- The preamble should describe the process by which the RRA will be ratified by the parliaments of the signatories, how it will become enforceable in the respective countries and within which timeframe;
- An article committing the signatories to take the decision to impose to all mobile roaming operators in the respective countries the obligation to reduce the price of roaming services (for voice, SMS and data) at wholesale and retail levels, as defined in the recommendations related to the RRA, based on the price models described under section 4.4.1. The chosen model should be added as an annex to the RRA. Reductions in international terminations costs and the avoidance of double taxation should also be considered;
- An article that sets a deadline for implementation of the decision by all the roaming operators of the EaP Countries;
- If applicable generally, an article mandating the attribution of specific powers to implement the RRA and the subsequent applicable laws to the Regulators or relevant Ministries;
- An article committing the signatories to change the regulatory framework to comply with the above-mentioned decision to reduce roaming tariffs. This article can be structured either by giving to the signatories an obligation to deliver the result, or the signatories can commit to enact specific changes, this would be the case where the Regulator would need additional powers to decide upon and control the implementation of the reductions in roaming tariffs;
- An article defining the role of the Regulator in preparing the new legislation, in cooperation with the relevant Ministries, for the application of the law, also giving the Regulator additional powers, if necessary, or defining how the authority should be constituted;
- An article binding the agreement to the EU regulatory framework on roaming tariffs. The article should determine to which extent the regulatory package on roaming applies, including its future amendments, in order to cope with the progressive adjustment of EU prices;
- An article that defines the role of the REWG (or a subset of the REWG composed only of EaP representatives) functioning as a central advisory structure to coordinate the agreement on common priorities and joint actions for the implementation of the RRA;
- An article committing each country to send a representative to the REWG at least twice a year to specifically discuss the implementation and development of the RRA;
- An article committing the signatory countries' regulators to impose on the roaming operators the obligation to automatically inform their customers of the applicable roaming tariffs when arriving in a country prior to their usage of the services;
- An article whereby the signatories declare that they will bear their own costs in relation to the reduction of roaming costs and that no financial transaction will be involved;
- An article that allows the signatories to leave the agreement within a defined notice period

110.

¹¹⁰ The Western Balkans RRA provides for a six months notice period

4.5.1.2 ADDITIONAL REQUIREMENTS

- The signatories should define how to arbitrate the disputes between countries related to the application of the RRA;
- Including in the agreement additional EU roaming regulations that the signatories commit to impose on the EaP roaming operators such as:
 - Consumers have the right to choose an alternative roaming provider;
 - Default cut-off limit for consumers to prevent bill shock
 - Default message notification of price terms and other required information
 - Provision of a free customer service number for information on prices and conditions of roaming
 - No cost access to emergency number
 - Right for the customers to buy from their home operators separate roaming services from the operator of their choice

4.5.2 DESCRIPTION OF THE IMPEDIMENTS AND POSSIBLE BARRIERS TO THE REALISATION OF AN RRA

- It is assumed that the RRA will be signed by the six EaP Countries, however its application realisation could be impeded by a number of factors relating to the launch of a simultaneous launch of cross-border regulatory interventions.
- The representatives from the Ministries and the Regulators may find it difficult to implement a simultaneous approach as it will require two levels of coordination: amongst the different responsible stakeholders within each country and at the international level among the six EaP Countries;
- The Regulators may need time to set up their roaming departments, as this may include hiring and training staff for highly qualified and skilled positions;
- The RRA parliamentary ratification process may be protracted and thus prevent the implementation of the agreement. This may be due to factors that relate to the parliamentary agenda or to other factors, which could involve a long consultation process, national debates, media intervention or even delaying tactics by opposing parties;
- The role of the mobile operators in the adoption of the law that ratifies the RRA should not be underestimated. In particular, the operators could hamper the ratification process by lobbying members of the Parliament or by launching campaigns in the media and social networks against the adoption of the RRA;
- Once the RRA is ratified, the mobile operators may file before judiciary or administrative courts cases, in some instances for the purpose of delaying the implementation of the reduced roaming tariffs;

- The role of the REWG is fundamental in coordinating the many details that need to be implemented by the Regulators and the availability of its members (especially from the EaP). Their capacity to take relevant decisions on this process will be necessary to ensure the success of this endeavour;
- Finally, a lesson learned from the process that led to the Western Balkans' RRA application is that a strong and continued political will is necessary to support the full implementation of the roaming tariff reductions.

4.6 CONSULTATIONS ON THE SCOPE AND RESULTS OF THE STUDY WITH KEY LINE MINISTRIES, REGULATORS AND OPERATORS IN THE EAP

4.6.1 DESCRIPTION OF THE APPROACH

The Study Team adopted a shared, transparent and inclusive approach with the REWG, the ministries and the regulators, in order to reach its assessments, results and recommendations.

4.6.2 DESCRIPTION OF THE CONTACTS STRUCTURE AT NATIONAL AND REWG LEVEL

The Study Team set up an organised structure of contacts at national and REWG level. A matrix of contacts with one Focal Point in each country and one Focal Point at REWG level was established. The National Experts were in constant contact with their respective Focal Point and the Study Team Leader maintained regular contacts with the REWG Chair and Focal Point. In several instances, further to the Study Team Leader request, the REWG Chair was successfully intervened to find solutions in several countries.

4.6.3 DESCRIPTION OF MEETINGS HELD WITH THE REGULATORS AND MINISTRIES

Several meetings were held between the National Experts with regulators and ministries during the project. The first series of these was held in Prague on 11-12 May 2017 on the occasion of the Kick-Off meeting where representatives from the REWG met the Study Team and the National Experts in each country. In Prague, they were able to discuss the specific approaches required for each country¹¹¹ and which issues needed to be solved to reduce international roaming tariffs in the EaP Countries.

4.6.4 PRESENTATION OF THE INITIAL RESULTS AND CONSULTATION PROCESS

A meeting was held in Kyiv on July 14, with the Study Team and the REWG Focal Point. The Study Team and the National Expert had the opportunity of discussing the progress of the data collection, how to structure the study and the additional progress to be made.

The initial results of the Study were presented at the Third REWG meeting in Vilnius, on September 18. The Vilnius meeting which was held on September 18 and 19 offered the opportunity to the Study Team and to the REWG members to go through an in-depth consultation process. The REWG members were able to comment the results directly and send their comments until October 1. Bilateral meetings were also held between members of the Study Team and representatives of the countries to analyse the initial results and the recommendations which were proposed. The consultation process helped to address and clarify many issues.

¹¹¹ The National Experts from Azerbaijan and Ukraine were not present

4.6.5 LISTS OF MEETING REPORTS AND STAKEHOLDERS' LISTS

The list of meeting reports in each country is included in Annex 3.

The stakeholders' list for each country is included in Annex 7, which is not published.

5 CONCLUDING REMARKS

In the EaP Countries, the regulatory framework for the telecommunications sector is not uniform or consistent. While the four EaP Countries of Armenia, Georgia, Moldova and Ukraine have in place a regulatory framework generally similar to that of the EU, albeit with local differences, in Azerbaijan and Belarus there is no independent regulator and the regulation of telecommunications tariffs is different from the SMP model. Despite these differences, in no EaP country the Regulator or the Ministries have the power to modify roaming tariffs. The present Study suggests therefore that the EaP Countries introduce amendments to their telecommunications laws, to allow such power to be granted to their Regulator or their relevant Ministries.

These amendments, which would be carried out independently in each country, would require that reduced tariffs be determined commonly to overcome the cross-border nature of roaming which necessarily escapes local regulators. The EU Commission resorted to the use of Regulations, a legislative tool directly applicable in all Member States. This Study suggests that the EaP Countries, which do not share a supra-national authority, could resort instead to an international treaty to reduce international roaming tariffs and entrust the REWG with advising its members on the coordination of roaming tariffs' reductions.

All EaP Countries are members of the International Telecommunication Union and, except for Azerbaijan and Belarus are also signatories of the WTO's GATS agreement. The ITU encourages international roaming agreements in view of a significant reduction in roaming tariffs. The WTO GATS would not be an obstacle to the creation of a regional low-cost roaming area among the EaP countries akin to the EU's Roam-Like-At-Home zone.

The analysis of the available market data from the EaP countries, which share significant economic and business ties, and of the EaP-based operators' financial statements show that currently EaP roaming represents less than 0.5% of the total revenue accruing from telecommunications services. Although a consistent reduction of international roaming tariffs in the EaP would somehow affect their revenue, its consequences on the operators' financials would be mitigated by a growth in the consumption of international roaming services. Operators in the EaP have to face very high wholesale prices compared to the domestic rates, which they charge to their customers. In addition, they also charge high retail tariffs. Thus, as the analysis demonstrates, an effective regulation should address both wholesale and retail tariffs. It also shows that reasonable and progressive tariff reductions should not substantially affect the operators' revenues.

It may be surmised that lower international roaming tariffs might avoid the fear of "bill shocks" and lead to a stronger take-up of voice and data roaming by the large segment of EaP-internal travellers who is still untapped by the mobile operators.

This Study proposes three roaming tariff models from which the EaP Countries might choose. In the Study Team's view, the best model to be adopted is the Amended EU Roaming regulation model,

which envisages a progressive reduction of the current tariffs over a five-year period, allowing both the EaP Regulators and the mobile operators to adapt smoothly to the new framework.

This Study also addresses the necessity to protect the economic interests of citizens and of mobile operators during the transition to the full implementation of the regulatory model. Protecting the EaP citizens' interests from and enhancing their rights against market inefficiencies will contribute positively to a more diffuse, greater economic welfare.

While high roaming charges can hinder the effort of individual EaP Countries to develop national knowledge-based economies, the creation of a common international EaP roaming space and of an EaP roaming market will benefit substantially all and each EaP country, especially through the easier development of activities based on or supported by a digital environment.

Reductions in roaming-related tariffs in the EaP Countries will require however a sustained, coordinated and harmonised approach among EaP governments, EaP Ministries, Regulators and Members of the REWG. This will be fundamental to address the challenges of such an exercise, in which the roaming tariffs will be lowered simultaneously across a multi-country area. EaP governments will also need to be politically involved for this endeavour to succeed.

Finally, the application of an EaP roaming tariff will offer an opportunity to create a new platform from which to negotiate new roaming tariffs with other countries or other areas, the most likely partner being the EU itself.

In this respect, further analysis should be considered on how to best address the expansion of the EU roaming tariffs to EaP citizens and, conversely, the extension of the new EaP tariffs to EU citizens.

6 ANNEXES

Annex 1 - Capacity Building: EU Regulator 1

Annex 2 - Capacity Building: EU Regulator 2

Annex 3 - List of Meetings

Annex 4 - Sources

Annex 5 - Traffic Summaries

Annex 6 - Local prices without adjustment

Annex 7– Stakeholders' list [NOT PUBLISHED]

6.1 ANNEX 1 - CAPACITY BUILDING: EU REGULATOR 1

Person	Activity	Time devoted to activity as % of total annual work time budget
Adviser of the division (economist)	Data collection, preparation of reports: benchmarking, transparency and comparability reports, other questionnaires related to wholesale roaming prices.	25
	Dispute resolution between operators (wholesale roaming access).	5
	Analysis and resolution of customer complaints.	15
	Drafting of documents at BEREC, presentation of new regulation to operators.	25
	Monitoring and enforcement of regulation: consultation of operators by phone and email; preparation of official letters to ensure compliance with regulation.	25
Head of the division (jurist)	Meetings with service providers and end-users to explain roaming regulation, preparation and publication of FAQ; preparation of answers to public media.	20
	Analysis and resolution of customer complaints.	5
Chief specialist no 1 (jurist)	Analysis and resolution of customer complaints.	15
Chief specialist no 2 (jurist)	Analysis and resolution of customer complaints.	15
Chief specialist no 3 (jurist)	Consultation regarding legal issues on roaming regulation (review or official letters).	10
Chief specialist no 4 (jurist)	Transposition of roaming regulation into national legislation.	1
Deputy director of the department	Management and control of roaming regulation activities.	1
	Meetings with service providers to explain roaming regulation, preparation of answers to public media.	0,5

Work time budget: 8 hours/day, 5 days per week, approximately 47 working weeks in a year.

6.2 ANNEX 2 - CAPACITY BUILDING: EU REGULATOR 2

Functions	Team leader - drafter 1	Roaming team					Member RT - customer relations hip	Quantity	Total
		Drafter 2 - engineer	Member RT - engineer	Member RT - lawyer 1	Member RT - lawyer 2	Member RT - customer relations hip			
	WD ¹¹²	WD	WD	WD	WD	WD			
Data collection, preparation of reports	19	28	14	2	2	3		68	
Benchmarking report	5	10	3	0,5	0,5	0,5	2	39	
Transparency and comparability reports	7	7	7	1	1	2	1	25	
Other questionnaires related to wholesale roaming prices	2	1	1				1	4	
Dispute resolution between operators (wholesale roaming access)	3	3	2	2	2	1		13	
Dispute resolution between operators (wholesale roaming access)	3	3	2	2	2	1	1	13	
Analysis and resolution of customer complaints	4	2	2	8	8	8		32	
Analysis and resolution of customer complaints	0,2	0,1	0,1	0,4	0,4	0,4	20	32	
Drafting of documents at BEREC, presentation of new regulation to operators	29	41	29	5	5	9		118	
Drafting of documents at BEREC	7	10	7	1	1	2	4	112	
Presentation of new regulation to operators	0,5	0,5	0,5	0,5	0,5	0,5	2	6	
Monitoring and enforcement of regulation	2	4	0	0	0	2		8	
Consultation of operators by phone and email	0,1	0,2				0,1	20	8	
Meetings with service providers and end-users to explain roaming regulation, preparation and publication of FAQ	7	9	6	6	6	9		43	
Meetings with operators	0,5	0,5	0,5	0,5	0,5	0,5	8	24	

¹¹² Working Days

Preparation and publication of FAQ	3	5	2	2	2	5	1	19
Consultation regarding legal issues on roaming regulation (review or official letters)	2,5	0,5	0,5	2,5	0,5	0,5		7
Consultation regarding legal issues on roaming regulation (review or official letters)	0,5	0,1	0,1	0,5	0,1	0,1	5	7
Transposition of RRA into national legislation	0,2	0	0,5	0,5	0	0		1,2
Transposition of RRA into national legislation (in the case of an EU regulator it would be the EU roaming regulation)	0,2		0,5	0,5			1	1,2
Management and control of roaming regulation activities	1	1	1	0,5	0,5	1		5
Management and control of roaming regulation activities	0,2	0,2	0,2	0,1	0,1	0,2	5	5
Preparation of answers to public media	19	16	9,6	12,6	17,1	23,5		97,8
Answer to e-mail	0,5	0,5	0,3	0,3	0,3	0,5	30	72
Publication on official web	0,5	0,5	0,3	0,3	0,3	0,5	2	4,8
TV	0,2			0,2	0,2	0,2	15	12
Radio					0,3	0,3	15	9
NUMBER OF WORKING DAYS	86,7	104,5	64,6	39,1	41,1	57		393
NUMBER OF PERSONS REQUIRED TO COVER THE WORKLOAD ¹¹³	0,39	0,47	0,29	0,18	0,19	0,26		1,78

¹¹³ The calculation is based on a total number of working days per year

6.3 ANNEX 3 – LIST OF MEETINGS (NOT PUBLISHED)

6.4 ANNEX 4 - SOURCES

Source	Type of data	AM	AZ	BY	GE	MD	UA
Public Data	Tourists	✓	✓	✓	✓	✓	✓
	Public prices: local	✓	✓	✓	✓	✓	✓
	Public prices: roaming	✓	✓	✓	✓	✓	✓
Operators' Data	Effective prices: local	✓		✓	✓	✓	✓
	Effective prices: roaming	✓		✓	✓	✓/X	✓
	Traffic: local	✓		✓	✓	✓	✓
	Traffic: roaming	✓		✓	✓	✓	✓
	Wholesale costs: local	✓		✓	✓		✓
	Wholesale costs: roaming	✓			✓		✓
	Financial health	✓		✓	✓	✓/X	✓
	Which years	2015 -16		2014 -16	2014 -16	2014-16	2014 -16
How many operators?	3		2-3	3	2-3	3	
EU Data (BEREC)	EU total: traffic	✓					
	EU total: prices	✓					
	Country level: traffic						
	Country level: prices						

6.5 ANNEX 5 - TRAFFIC SUMMARIES

VOICE OUT SUMMARY

Georgia	Armenia	Azerbaijan	Belarus	Georgia	Moldova	Ukraine	TOTAL
AS-IS price	0.967	0.575	1.068		0.824	1.249	0.870
Volume share	26%	43%	5%		1%	25%	100%
AS-IS volume	58,658	98,892	11,460		2,329	56,193	227,532
TO-BE volume	721,691	743,758	140,993		26,539	691,366	2,324,348
DELTA volume	663,033	644,866	129,534		24,210	635,173	2,096,816
Growth	1130%	652%	1130%		1039%	1130%	922%
Total effect	120,457	73,825	23,533		4,162	115,396	337,374
Operator effect	- 84,127	- 92,135	- 16,436		- 3,160	- 80,592	- 276,450
Consumer effect	204,584	165,960	39,969		7,322	195,988	613,824
TO-BE price	0.039	0.039	0.039		0.039	0.039	0.039

Belarus	Armenia	Azerbaijan	Belarus	Georgia	Moldova	Ukraine	TOTAL
AS-IS price	0.808	0.779		1.024	0.820	0.780	0.800
Volume share	2%	5%		8%	2%	84%	100%
AS-IS volume	12,846	36,827		60,336	16,574	659,688	786,270
TO-BE volume	80,378	219,541		418,667	105,798	3,939,288	4,763,671
DELTA volume	67,532	182,714		358,331	89,224	3,279,600	3,977,401
Growth	526%	496%		594%	538%	497%	506%
Total effect	10,821	28,193		61,827	14,514	506,723	622,079
Operator effect	- 9,887	- 27,294		- 50,103	- 12,951	- 489,579	- 589,814
Consumer effect	20,708	55,487		111,930	27,465	996,302	1,211,893
TO-BE price	0.037	0.037		0.037	0.037	0.037	0.037

Armenia	Armenia	Azerbaijan	Belarus	Georgia	Moldova	Ukraine	TOTAL
AS-IS price			0.724	0.375	1.024	0.550	0.393
Volume share			1%	91%	0%	7%	100%
AS-IS volume			11,158	829,411	1,046	66,324	907,939
TO-BE volume			35,106	1,457,739	4,199	156,093	1,653,136
DELTA volume			23,948	628,328	3,153	89,769	745,197
Growth			215%	76%	301%	135%	82%
Total effect			6,808	99,401	1,034	20,229	127,472
Operator effect			- 7,546	- 277,199	- 856	- 33,575	- 319,176
Consumer effect			14,353	376,601	1,890	53,805	446,648
TO-BE price			0.037	0.037	0.037	0.037	0.037

Ukraine	Armenia	Azerbaijan	Belarus	Georgia	Moldova	Ukraine	TOTAL
AS-IS price	0.338	0.604	0.247	0.362	0.708		0.392
Volume share	7%	7%	35%	36%	16%		100%
AS-IS volume	107,225	97,248	515,090	532,482	239,606		1,491,651
TO-BE volume	1,739,750	2,459,315	7,180,219	8,992,630	7,207,540		27,579,454
DELTA volume	1,632,525	2,362,067	6,665,129	8,460,148	6,967,934		26,087,802
Growth	1523%	2429%	1294%	1589%	2908%		1749%
Total effect	12,812	59,246	22,598	77,851	225,575		398,081
Operator effect	- 64,951	- 110,317	- 218,691	- 347,982	- 321,205		- 1,063,146
Consumer effect	77,763	169,563	241,289	425,833	546,780		1,461,228
TO-BE price	0.034	0.034	0.034	0.034	0.034		0.034

VOICE IN SUMMARY

Georgia	Armenia	Azerbaijan	Belarus	Georgia	Moldova	Ukraine	TOTAL
AS-IS price	0.330	0.204	0.337		0.134	0.179	0.229
Volume share	22%	36%	5%		1%	35%	100%
AS-IS volume	125,101	205,086	28,355		6,255	199,672	564,470
TO-BE volume	2,217,178	2,098,338	518,120		47,167	1,831,959	6,712,762
DELTA volume	2,092,078	1,893,252	489,765		40,911	1,632,286	6,148,292
<i>Growth</i>	1672%	923%	1727%		654%	817%	1089%
Total effect	61,780	27,821	14,843		276	19,164	123,884
Operator effect	- 59,757	- 59,301	- 13,841		- 1,153	- 50,261	- 184,313
Consumer effect	121,537	87,122	28,684		1,429	69,425	308,196
TO-BE price	0.011	0.011	0.011		0.011	0.011	0.011

Belarus	Armenia	Azerbaijan	Belarus	Georgia	Moldova	Ukraine	TOTAL
AS-IS price	0.312	0.320		0.328	0.299	0.324	0.324
Volume share	2%	4%		7%	2%	85%	100%
AS-IS volume	17,529	34,983		62,114	19,209	729,815	863,649
TO-BE volume	263,550	544,642		1,001,359	272,893	11,562,229	13,644,672
DELTA volume	246,021	509,659		939,245	253,684	10,832,414	12,781,023
<i>Growth</i>	1404%	1457%		1512%	1321%	1484%	1480%
Total effect	5,678	12,115		22,967	5,567	261,203	307,530
Operator effect	- 5,278	- 10,813		- 19,695	- 5,534	- 228,498	- 269,819
Consumer effect	10,957	22,928		42,663	11,101	489,700	577,349
TO-BE price	0.011	0.011		0.011	0.011	0.011	0.011

Armenia	Armenia	Azerbaijan	Belarus	Georgia	Moldova	Ukraine	TOTAL
AS-IS price			0.322	0.259	0.367	0.244	0.259
Volume share			2%	91%	0%	8%	100%
AS-IS volume			24,076	1,295,622	2,558	107,249	1,429,505
TO-BE volume			93,436	3,820,391	12,079	296,222	4,222,128
DELTA volume			69,360	2,524,769	9,521	188,973	2,792,623
<i>Growth</i>			288%	195%	372%	176%	195%
Total effect			8,433	258,223	1,275	18,388	286,319
Operator effect			- 7,474	- 320,809	- 909	- 24,951	- 354,143
Consumer effect			15,907	579,032	2,184	43,339	640,463
TO-BE price			0.011	0.011	0.011	0.011	0.011

Ukraine	Armenia	Azerbaijan	Belarus	Georgia	Moldova	Ukraine	TOTAL
AS-IS price	0.330	0.486	0.547	0.399	0.716		0.528
Volume share	6%	7%	39%	26%	22%		100%
AS-IS volume	82,740	91,167	533,771	352,124	292,199		1,352,001
TO-BE volume	2,037,461	4,432,207	33,857,340	11,714,691	26,506,822		78,548,522
DELTA volume	1,954,721	4,341,041	33,323,570	11,362,567	26,214,623		77,196,521
<i>Growth</i>	2362%	4762%	6243%	3227%	8971%		5710%
Total effect	56,119	193,917	1,654,486	412,684	1,578,304		3,895,509
Operator effect	- 58,162	- 95,327	- 629,445	- 300,947	- 309,475		- 1,393,357
Consumer effect	114,281	289,243	2,283,931	713,631	1,887,779		5,288,866
TO-BE price	0.011	0.011	0.011	0.011	0.011		0.011

SMS SUMMARY

Georgia	Armenia	Azerbaijan	Belarus	Georgia	Moldova	Ukraine	TOTAL
AS-IS price	0.099	0.095	0.106		0.085	0.134	0.109
Volume share	24%	35%	7%		1%	32%	100%
AS-IS volume	94,904	137,364	27,917		4,762	123,055	388,002
TO-BE volume	284,926	407,474	85,596		13,708	410,422	1,202,125
DELTA volume	190,022	270,110	57,679		8,946	287,367	814,123
<i>Growth</i>	200%	197%	207%		188%	234%	210%
Total effect	1,775	2,328	614		62	4,692	9,470
Operator effect	- 11,933	- 16,461	- 3,799		- 500	- 21,827	- 54,521
Consumer effect	13,708	18,789	4,413		562	26,519	63,991
TO-BE price	0.014	0.014	0.014		0.014	0.014	0.014

Belarus	Armenia	Azerbaijan	Belarus	Georgia	Moldova	Ukraine	TOTAL
AS-IS price	0.076	0.068		0.107	0.129	0.070	0.075
Volume share	2%	4%		9%	2%	84%	100%
AS-IS volume	22,932	55,806		140,583	22,583	1,240,550	1,482,453
TO-BE volume	27,054	64,273		182,047	31,242	1,437,376	1,741,991
DELTA volume	4,122	8,467		41,464	8,659	196,827	259,538
<i>Growth</i>	18%	15%		29%	38%	16%	18%
Total effect	156	287		2,162	538	6,869	10,012
Operator effect	- 1,216	- 2,530		- 11,634	- 2,344	- 58,622	- 76,345
Consumer effect	1,371	2,817		13,796	2,881	65,491	86,357
TO-BE price	0.018	0.018		0.018	0.018	0.018	0.018

Armenia	Armenia	Azerbaijan	Belarus	Georgia	Moldova	Ukraine	TOTAL
AS-IS price			0.105	0.070	0.178	0.128	0.076
Volume share			3%	89%	0%	8%	100%
AS-IS volume			10,072	325,948	919	29,456	366,395
TO-BE volume			18,685	544,306	2,123	58,556	623,670
DELTA volume			8,613	218,358	1,204	29,100	257,275
<i>Growth</i>			86%	67%	131%	99%	70%
Total effect			213	2,618	66	990	3,888
Operator effect			- 1,203	- 23,119	- 202	- 4,452	- 28,976
Consumer effect			1,416	25,737	268	5,443	32,864
TO-BE price			0.019	0.019	0.019	0.019	0.019

Ukraine	Armenia	Azerbaijan	Belarus	Georgia	Moldova	Ukraine	TOTAL
AS-IS price	0.169	0.165	0.166	0.172	0.188		0.171
Volume share	3%	7%	49%	24%	17%		100%
AS-IS volume	36,970	88,091	623,882	308,079	213,291		1,270,313
TO-BE volume	453,111	1,066,757	7,577,777	3,810,069	2,767,751		15,675,465
DELTA volume	416,141	978,666	6,953,895	3,501,990	2,554,460		14,405,152
<i>Growth</i>	1126%	1111%	1115%	1137%	1198%		1134%
Total effect	3,285	7,405	53,184	28,517	24,275		116,667
Operator effect	- 10,814	- 25,089	- 178,888	- 91,890	- 70,169		- 376,850
Consumer effect	14,099	32,494	232,072	120,407	94,445		493,517
TO-BE price	0.018	0.018	0.018	0.018	0.018		0.018

DATA SUMMARY

Georgia	Armenia	Azerbaijan	Belarus	Georgia	Moldova	Ukraine	TOTAL
AS-IS price	0.239	0.075	0.058		0.195	0.180	0.137
Volume share	13%	40%	7%		2%	37%	100%
AS-IS volume	41,879	127,633	23,261		5,798	116,706	315,277
TO-BE volume	413,773	661,249	104,438		51,147	984,634	2,215,242
DELTA volume	371,893	533,617	81,177		45,349	867,928	1,899,964
<i>Growth</i>	888%	418%	349%		782%	744%	603%
Total effect	12,724	8,216	1,009		1,367	24,862	48,179
Operator effect	- 14,805	- 12,719	- 1,713		- 1,653	- 30,556	- 61,446
Consumer effect	27,530	20,935	2,722		3,020	55,418	109,625
TO-BE price	0.008	0.008	0.008		0.008	0.008	0.008

Belarus	Armenia	Azerbaijan	Belarus	Georgia	Moldova	Ukraine	TOTAL
AS-IS price	11.588	1.919		1.182	1.153	1.086	1.351
Volume share	2%	5%		8%	1%	83%	100%
AS-IS volume	5,280	13,952		20,889	3,038	217,947	261,105
TO-BE volume	109,961	290,553		403,827	57,914	4,019,184	4,881,440
DELTA volume	104,681	276,602		382,938	54,877	3,801,237	4,620,335
<i>Growth</i>	1983%	1983%		1833%	1807%	1744%	1770%
Total effect	9,995	26,409		34,155	4,833	324,627	400,020
Operator effect	- 9,337	- 24,670		- 32,233	- 4,570	- 308,445	- 379,255
Consumer effect	19,331	51,080		66,389	9,403	633,073	779,275
TO-BE price	0.009	0.009		0.009	0.009	0.009	0.009

Armenia	Armenia	Azerbaijan	Belarus	Georgia	Moldova	Ukraine	TOTAL
AS-IS price			1.311	0.233	0.857	0.911	0.277
Volume share			1%	94%	0%	5%	100%
AS-IS volume			2,151	261,418	329	14,112	278,010
TO-BE volume			36,823	1,709,746	4,445	197,251	1,948,265
DELTA volume			34,672	1,448,328	4,116	183,139	1,670,255
<i>Growth</i>			1612%	554%	1251%	1298%	601%
Total effect			2,915	48,506	279	12,804	64,504
Operator effect			- 2,786	- 58,123	- 277	- 12,655	- 73,842
Consumer effect			5,701	106,629	556	25,459	138,346
TO-BE price			0.008	0.008	0.008	0.008	0.008

Ukraine	Armenia	Azerbaijan	Belarus	Georgia	Moldova	Ukraine	TOTAL
AS-IS price	0.260	0.198	0.299	0.167	0.491		0.279
Volume share	6%	9%	43%	27%	14%		100%
AS-IS volume	114,774	169,463	779,447	491,945	261,716		1,817,344
TO-BE volume	1,829,214	2,320,594	13,428,193	6,127,055	5,943,542		29,648,599
DELTA volume	1,714,440	2,151,131	12,648,746	5,635,110	5,681,826		27,831,254
<i>Growth</i>	1494%	1269%	1623%	1145%	2171%		1531%
Total effect	59,514	62,694	478,795	146,540	288,409		1,035,953
Operator effect	- 68,228	- 75,581	- 536,269	- 182,981	- 300,946		- 1,164,006
Consumer effect	127,742	138,276	1,015,064	329,521	589,356		2,199,958
TO-BE price	0.009	0.009	0.009	0.009	0.009		0.009

6.6 ANNEX 6 - LOCAL PRICES WITHOUT ADJUSTMENTS

How retail prices were derived for individual services from bundles

When formulating the data request the Study Team asked the Regulators to ask the operators to provide the revenue split by services (local voice, SMS and data) when that revenue could be attributed to one of the services. We also obtained the total volume of traffic for each particular service. The effective prices were calculated by dividing that revenue for that particular service by the corresponding traffic. If part of the revenue could not be attributed to one of the services, we obtained the revenue from the *subscription revenue for multiple products*. Operators in Ukraine and Armenia were fully able to allocate revenue to each of the service item. In Moldova revenue for multiple products was 5% compared to the total revenue of local outgoing services (local voice, SMS, data), in Georgia it was 22% and in Belarus 50%. We used the coefficient of 1.05 (Moldova), 1.22 (Georgia), 1.5 (Belarus) to adjust the effective local prices for voice, SMS and data.

The table below summarizes the impact of the adjustment:

Local prices without adjustment, EUR cents

	Armenia	Azerbaijan	Belarus	Georgia	Moldova	Ukraine
Voice	0.48		0.46	0.73	0.89	0.20
SMS	0.86		0.76	0.36	0.83	0.79
Data	0.05		0.14	0.08	0.06	0.15

Multiplier used to adjust local service prices

	Armenia	Azerbaijan	Belarus	Georgia	Moldova	Ukraine
Multiplier	1.00		1.50	1.22	1.05	1.00

Local prices with adjustment, EUR cents

	Armenia	Azerbaijan	Belarus	Georgia	Moldova	Ukraine
Voice	0.48		0.70	0.89	0.93	0.20
SMS	0.86		1.15	0.44	0.87	0.79
Data	0.05		0.21	0.10	0.06	0.15

6.7 ANNEX 7 – STAKEHOLDERS’ LISTS (NOT PUBLISHED)