Body of European Regulators for Electronic Communications

BEREC

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# International Roaming
# BEREC Benchmark Data Report
# July 2012 – March 2013

**30 September 2013**

# Contents

# Executive summary

This BEREC Benchmark Report on International Roaming (the “Report”) presents the results of the eleventh round of data collection on European international roaming services undertaken by the Body of European Regulators for Electronic Communications (BEREC). The Report covers the period 1 July 2012 – 31 March 2013, i.e. quarters 3 & 4 2012 and quarter 1 2013. The Report also includes data from previous rounds of data collection conducted by BEREC and its predecessor, the European Regulators Group (ERG), to provide context for the current figures. The earliest data is from quarter 2nd 2007, when regulation was about to enter into force.

The applicable regulatory framework for this data collection is the Roaming Regulation (EU) No 531/2012 (Third Roaming Regulation) applied in the EU (European Union) and the EEA EFTA countries[1], with requirements for retail and wholesale (inbound and outbound) regulated tariffs for voice, SMS and data roaming. In addition, Switzerland contributed to the data collections, although the 2007, 2009 and 2012 Roaming Regulation is not applicable there[2].

BEREC is required to regularly collect data from national regulatory authorities on the development of retail and wholesale charges for voice, SMS and data roaming services and to notify those data to the Commission under the Roaming Regulation – Article 19 paragraph 4.

BEREC believes that the information collected in existing and subsequent reports provides a sound basis for any decisions regarding future regulation. In addition, BEREC considers it important to collect and publish a wider range of information in order to give a better picture of the effect of the EU Roaming Regulations and to present the state of evolution of roaming services.

While the monitoring obligations are addressed to individual NRAs, BEREC considers that it can add value by pursuing the following objectives:

Simplifying the process, not only for NRAs as BEREC acts as a central point for the data collection, but also for the Commission, as the data is received from a single source and, following data processing, checking it for inconsistencies;

Coordinating the actions of individual NRAs, as the data collection exercise uses a single and commonly agreed data collection model, and the process is synchronised and based on the same collection periods. BEREC consults the market players and the Commission before finalising the data collection templates;

As far as possible, providing a common response to the different questions posed during the collection process by operators and NRAs, as BEREC serves as the forum where these questions are commonly debated and addressed.

[1] For the purposes of this Report, ‘EEA EFTA’ (European Economic Area, European Free Trade Association) refers to Liechtenstein, Norway and Iceland.
[2] Figures from Switzerland are excluded from both “EEA” and “EEA EFTA” averages.

# Introduction

The European Regulators Group (ERG) worked on the long-standing issue of high prices for international roaming services. Following its creation in January 2010, the Body of European Regulators in Electronic Communications (BEREC) has taken over responsibility for this work from ERG.

### *The 2007 Regulation*

In 2005, ERG undertook a study of international roaming that concluded that the EC Regulatory Framework did not provide the necessary tool-kit for NRAs to tackle the problems identified. ERG wrote to the Commission in December 2005 highlighting its concerns.

After significant debate, the first Regulation on international roaming services was published on 29 June 2007. The primary provisions capped wholesale and retail charges voice calls for the Eurotariff and set a number of transparency provisions to help to ensure that consumers were well informed. The provisions of the Regulation entered into force at different times, with retail and transparency provisions taking full effect by the end of September 2007 and wholesale provisions calculated annually from the end of August 2007[3].

### *The 2009 amended Regulation*

On 7 May 2008, the Commission launched a public consultation on the functioning of the 2007 Regulation. ERG's views expressed in response to the consultation were substantially reflected in the Commission's legislative proposals,[4] published on 23 September 2008, to extend the 2007 Regulation in duration and scope.

On 22 April 2009, the European Parliament adopted Regulation (EC) No 544/2009 at first reading, with a view to amending Regulation (EC) No 717/2007. Subsequently, on 8 June 2009 the Council of EU Telecoms Ministers formally adopted the new EU roaming rules approved by the European Parliament. The definitive text of Regulation (EC) No 544/2009 was published in the Official Journal of the European Union on 29 June 2009[5,6].

In particular, the Regulation introduced the following measures related to price control, applicable from 1 July 2009 to 30 June 2012:

- an extension of wholesale and retail price regulation for voice, with a yearly decrease in the level of the caps;
- price regulation of SMS roaming services at both the wholesale and retail levels;
- price regulation of data roaming services at the wholesale level.

And from July 2010 to June 2012:

- retail transparency measures to protect consumers from "bill shock" when data roaming

[3] In Norway and Iceland the 2007 Regulation was in force from the end of 2007 to quarter 2 2010
[4]http://ec.europa.eu/information_society/activities/roaming/docs/regulation/reg_en.pdf
[5]http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2009:167:0012:0023:EN:PDF
[6]From quarter 3 2009 to quarter 1 2010, Regulation 544/2009 applied in the EU while the first Roaming Regulation (EC) No 717/2007 remained in force in Norway, Iceland and Liechtenstein, with slightly higher voice caps, no SMS caps and no wholesale data cap.

***The 2012 amended Regulation***

On 29 June 2010, the Commission published an interim Report[7] on the functioning of the 2009 Regulation. The Commission's Digital Agenda for Europe[8] also included a target for roaming, where 'the difference between roaming and national tariffs should approach zero by 2015'.

In accordance with the 2009 Regulation, BEREC provided advice to the Commission on the functioning of the Regulation and future regulatory options in its December 2010 Report[9], supplemented by its February 2011 response to the Commission's public consultation[10].

The Commission then published a full review of the functioning of the Regulation and legislative proposals for a new Regulation in July 2011[11].

On 30 May 2012 the Council of the European Union (EU) approved the International Roaming Regulation III[12], which entered into force on 1 July 2012[13].

The Regulation introduced the following measures, applicable from 1 July 2012:

- an extension of wholesale and retail price regulation for voice, SMS with a yearly decrease in the level of the caps to be in force until July 2022 for wholesale services and until July 2017 for the eurotariffs;

- price regulation of data roaming services at the retail level to be in force until July 2017;

- the obligation for MNOs to meet all reasonable requests for wholesale roaming access, which comprises direct wholesale roaming access and wholesale roaming resale access under the rules set out in the Roaming Regulation.

The regulation does also include provisions on the separate sale of roaming services that will enter into force on 1 July, 2014.

[7]http://ec.europa.eu/information_society/activities/roaming/docs/interim_report2010.pdf
[8]http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2010:0245:FIN:EN:PDF
[9]http://erg.eu.int/doc/berec/bor_10_58.pdf
[10]http://ec.europa.eu/information_society/activities/roaming/docs/cons11/Berec.pdf
[11]http://ec.europa.eu/information_society/activities/roaming/index_en.htm
[12] http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2012:172:0010:0035:EN:PDF
[13] With regard to the EEA EFTA countries, it must be noted that the Roaming Regulation applies in these countries as from 7 December (Norway and Liechtenstein) and 21 December (Iceland) 2012.

# Methodology for data collection

ERG first consulted on a draft version of its data questionnaire during September 2007. Following comments received, ERG amended the data questionnaire sent to providers, with an accompanying Explanatory Memorandum, in October 2007.

In order to verify operators' compliance with the new III Roaming Regulation, BEREC prepared the new questionnaire. NRAs and the Commission have been informally consulted on subsequent revisions of the template.

The information gathered for this Report covers both retail and wholesale prices and volumes for voice, SMS and data roaming services. Each NRA aggregated individual provider data to provide a national aggregate to BEREC. Therefore, only national aggregated data appears in this Report.

Over 137 providers of international roaming services provided information for this Report. These include virtually all of the mobile network operators in the EU, as well as a significant number of MVNOs that provide EU roaming services. BEREC estimates that this covers around 95% of EU consumers using international roaming services today.

There is a limited number of operators that have some problems supplying reasonable quality data. This is not at all unusual for a comprehensive data collection of this type. In most cases the NRA was able to work with the company to resolve or alleviate the problem. In other cases, where system upgrades will be necessary to comply with the new format of the data collection, the company was asked to provide the best possible estimate currently available and to complete upgrades in time to provide high quality data in future.

The prices for the Eurotariff may exceed the price caps due to the 30 second minimum initial charging interval and in some cases non-regulated calls have been included due to problems with reporting.

At the wholesale level, operators often receive discounts based on variables like volume of traffic, calculated at the end of a 12-month period. When providing data for these Reports, operators may estimate the effect of such discounts on data for each quarter. Because the actual discount may vary from the estimate, there may be an apparently 'anomalous' result for the quarter when the discount is actually applied. This should be kept in mind when comparing wholesale figures for different quarters in the same year.

A further issue that may cause an apparent change in price between quarters is that in a few cases the number of operators changed. This can cause strong volume changes.

When wholesale prices are above the price caps, in most cases the reason is that the average price is to be annual and not per quarter, and in such cases some quarters compensate for other quarters. Another reason may also be inaccuracies in reporting for the data collection itself.

For ease of comparison, the Euro is used throughout this Report. Within the EU, currency fluctuations between the Euro and other national currencies are likely to have affected the average prices reported for EEA countries outside the Euro zone.

In case of EEA countries, the Roaming Regulation applies in these countries as from 7 December (Norway and Liechtenstein) and 21 December (Iceland) 2012.

For the first time the Report includes data from Liechtenstein and historical data are not available.

# Main Findings

The information gathered by BEREC continues to suggest a good level of compliance with the Roaming Regulation in all EU Member States. At the retail level, all consumers have access to a Eurotariff and a Euro-SMS tariff. At the wholesale level, the voice, SMS and data roaming charges set between operators are in line with the declining regulated average caps. In previous collection 2 countries reported average prices that were slightly above the regulated cap. In this collection more countries have reported average prices slightly above the price caps. The reasons of most cases are explained in the Methodology Chapter.

NRAs are monitoring compliance with the provisions of the Regulation to gather further information on the possible reasons for this reported price. BEREC will keep monitoring this issue closely. During the data collection period, the applicable caps were:

| Service and Price Cap - Retail level (ex VAT) | Q3 2012 - Q1 2013 |
|---|---|
| Eurotariff voice (making call) (€c/minute) | 29 |
| Eurotariff voice (receiving call) €c/minute) | 8 |
| Euro-SMS sent (€c/SMS) | 9 |
| Euro-SMS received (€c/SMS) | 0 |
| Data transfer | 70 |

| Service and Price Cap - wholesale level, inbound (ex VAT) | Q3 2012 - Q1 2013 |
|---|---|
| Wholesale voice (€c/minute) | 14 |
| Wholesale SMS (€c/SMS) | 3 |
| Wholesale data (€c/MB) | 25 |

**Evolution of prices**

In general, average Eurotariff retail voice roaming rates (see Figures 1 - 3) remained fairly close to the regulated caps in most EU Member States during the data collection period. For calls made, the EU average Eurotariff was €0.265 in Q3 2012, €0.259 for Q4 2012 and 0.253 in Q1 2013 compared to a cap of €0.29 (i.e. on average 3 cents less than the cap). In Q3,Q4 2012 and Q1 2013, the EU average unregulated voice tariff for calls made (Figures 1 - 3) was lower than during the equivalent period of 2011/2012 (€0.330, €0.320, €0.310 compared to €0.378, €0.366 and €0.366 in Q3/Q4 2011 and Q1 2012).

For calls received, the EU average Eurotariff rate was nearer the cap at €0.072 during Q3 2012, €0.071 in Q4 2012 and €0.070 in Q1 2013, compared to a cap of €0.08. For calls received, unregulated prices were lower in Q4 2012 and Q1 2013 than in Q4 2011 and Q1 2012 (€0.142 and €0.132 compared to €0.145 and €0.140 in the same periods). In Q3 2012 unregulated prices for calls received were higher than in Q3 2011 (€0.132 compared to €0.113).

As can be seen in Figure 4 and 8, the nature of the difference in the average EEA price for regulated and unregulated voice prices has changed over time. Since 2010 the tariffs for alternative tariffs have been higher than for Eurotariffs. The price for Eurotariffs has been steadily lowered, while the price of alternative tariffs has been more stable despite the changes on the roaming market.

Considering ‘Rest of World’ retail voice roaming calls (Figures 27 - 32), typical prices are significantly greater than for calls within EU countries. Comparing the same quarters of 2011 and 2012, while there is no consistent trend in average country prices for calls made or received, the average for all EU-based providers has decreased. There are no indications that operators have in general tended to raise the prices of unregulated ‘Rest of World’ roaming calls to make up for loss of revenue due to the regulated price caps.

Regarding the effects of standardisation of billing units for Eurotariff calls (Figures 9 - 11), the 2012 Regulation (the mechanism introduced in the amended 2009 Regulation) requires per second billing for Eurotariff calls made, with the possibility of charging for an initial minimum period of up to 30 seconds to cover the costs of setting up the call. This has led to a significant drop in the EU average surcharge for calls made, from around 26% in Q2 2009 to 5.58% in Q3 2012, 5.39% in Q4 2012 and 5.30% in Q1 2013.

The introduction of the Euro-SMS in the EU in accordance with the 2009 Regulation, obligation continued in the 2012 Regulation, has led to an EU average Euro-SMS price (Figures 34 - 36) of around €0.083 in Q3/Q4 2012 and in Q1 2013, compared to a regulated cap of €0.09. The EU average price for unregulated SMS is higher at around €0.15 (Q3 and Q4 2012 and Q1 2013). Before the 2009 Regulation, the EU average SMS price was around €0.27 - €0.24 (Q1 – Q2 2009).

At the wholesale level, the 2012 Regulation has led to a reduction in the average EU SMS price (Figures 38-40) to €0.030 in Q3 and Q4 2012 and 0.025 in Q1 2013. In comparison, the EU average price was €0.136 - €0.133 in Q1 – Q2 2009, before the 2009 Regulation came into force.

The 2012 Regulation introduced new retail price caps for data services (€0.70). This has led to a drop in retail prices (Figures 45 – 48). There is a significant difference between the prices for non-group retail data services in 2011 and data Eurotariff in 2012/Q1 2013: €1,583 in Q3 2012, €1.487 in Q4 2012 € and €1.379 in Q1 2012 comparing to €0.499, € 0.482 and €0.482 in the same quarters 2012/2013 for intra-group retail data services.

At the wholesale level, an average data cap of €0.25 applies in the EU in accordance with the 2012 Regulation. The EU average price for non-group wholesale data (Figure 49) has fallen to €0.069 per MB in Q1 2013, compared with an EU average of €1.20 in Q2 2009, just before the Regulation came into effect.

**Evolution of volumes**

Regarding EU volumes on voice, SMS and data roaming services (Figures: 21 - 26, 42 – 44, 51 – 53), one particular issue stands out as being the significant difference between these services. While volumes for voice and SMS services remain almost at the same level (graphs show a slight increase in volumes for SMS and calls received, calls made stays at similar level since 2009), data services peaks  each year (up to around 88,17% in Q1 2013 compared to Q1 2012). This Benchmark Report identified the decrease in volumes in some countries just line in the previous 10th Benchmark Report. This might be caused by economic crisis and is most pronounced in some Mediterranean Countries (especially for calls made). Users of roaming services were more likely to use data services than others.

**Evidence of market forces at work**

For voice roaming services, average EEA prices are close to the regulated caps. This suggests that providers see little attraction in competing on Eurotariff rates, despite the fact that there is a significant margin between typical wholesale prices and retail caps.

BEREC notes in this benchmark exercise that the European average price paid per minute for voice calls under alternative tariffs was not, as would be expected, below the average price for the Eurotariff. These results were also reported in the previous Benchmark Reports. Moreover the gap widened, especially for incoming calls.

This is clearly illustrated in Figures 5-7. In almost half of the Member States, the national average price for incoming calls for alternative tariffs is significantly above the Eurotariff average price (a factor of 2 is typical for those Member States).

The Eurotariffs account for the majority of voice and SMS traffic. Nevertheless, there is a substantial minority of customers who use alternative tariffs. In the first quarter of 2013, 33% of calls made and 29% of calls received were based on non Eurotariffs. For text messages sent while roaming within EEA countries, unregulated non-Euro SMS tariffs accounted for 14% of the total volume.

There is significant difference in case of data roaming services. Only 60% of customers used data Eurotariffs while roaming in Q1 2013[14]. Such difference may be caused by long term subscriptions for alternative roaming plans, especially from corporate customers intensively using data services.

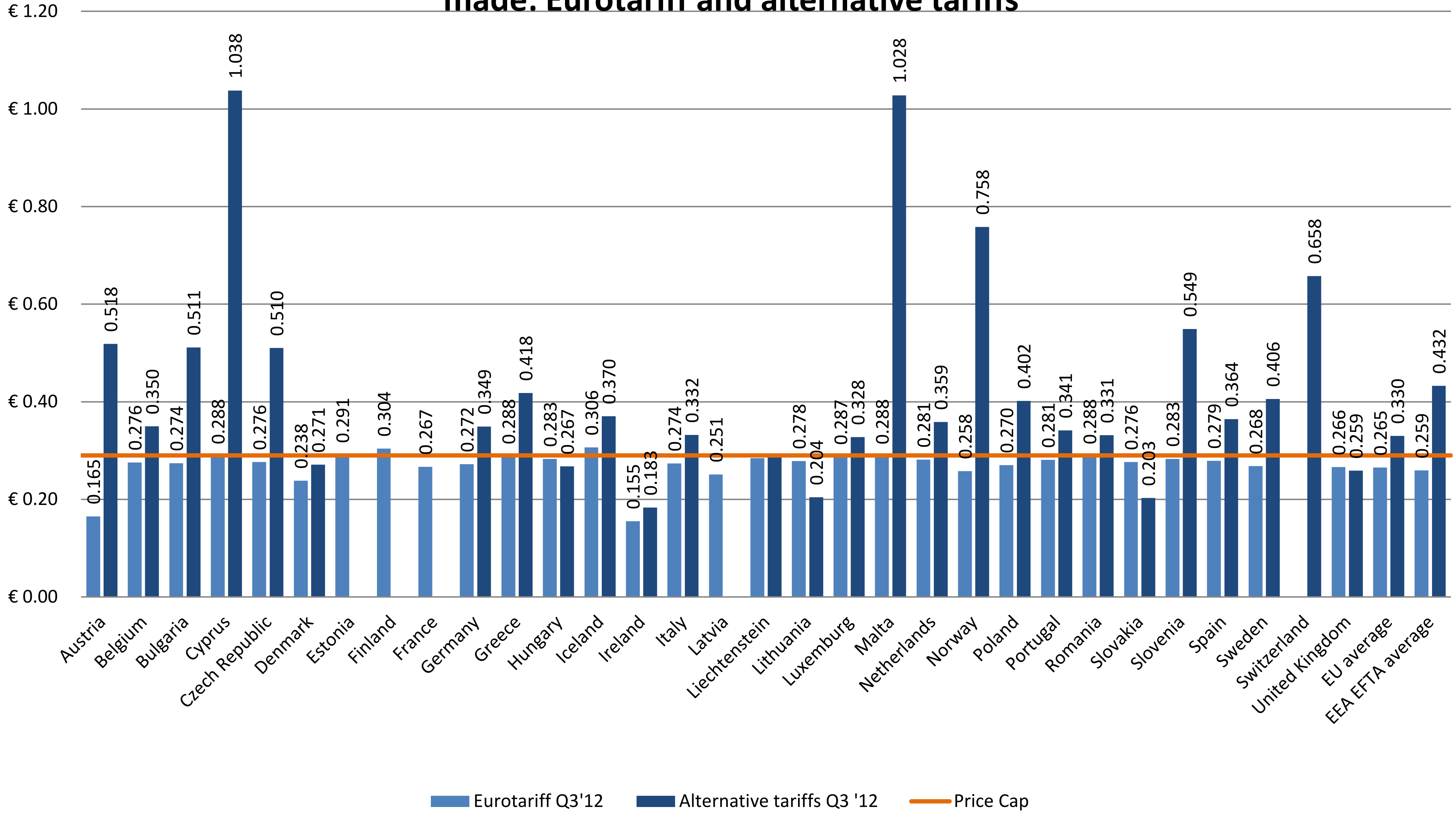
[14] It must be noted that not all countries provided data for prepaid or postpaid alternative tariffs and care should be taken when comparing percentages with voice and SMS services.

# Charts

# Voice roaming services

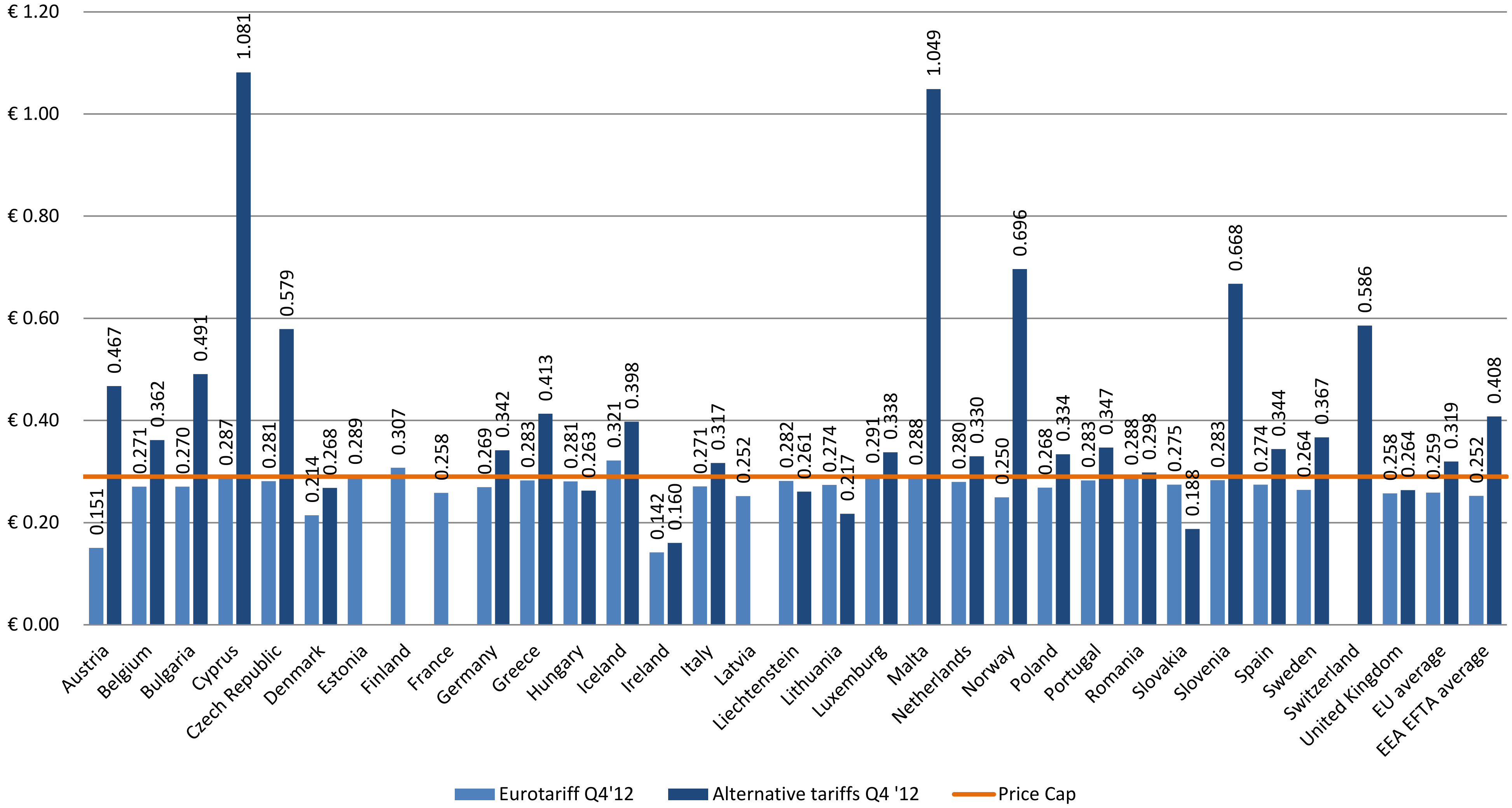
## Retail prices

**Figure 1: Average retail price per minute for intra-EEA roaming voice calls made: Eurotariff and alternative tariffs***



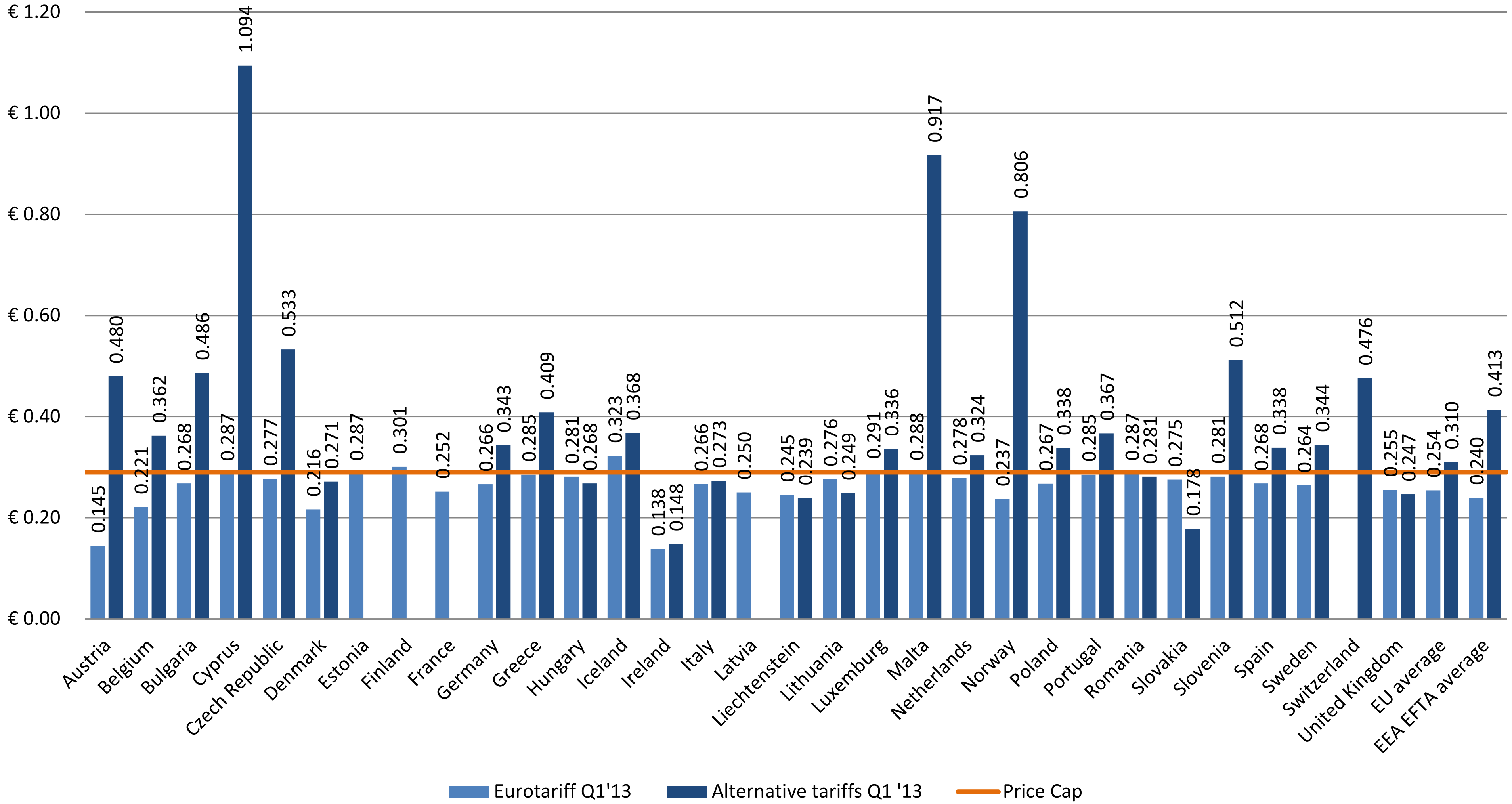

* Data for alternative tariffs for some countries have not been reported and for others there are no alternative tariffs.
* EU alternative tariff average: excluding Cyprus

**Figure 2: Average retail price per minute for intra-EEA roaming voice calls made: Eurotariff and alternative tariffs***




* Data for alternative tariffs for some countries have not been reported and for others there are no alternative tariffs.
* EU alternative tariff average: excluding Cyprus

**Figure 3: Average retail price per minute for intra-EEA roaming voice calls made: Eurotariff and alternative tariffs***




* Data for alternative tariffs for some countries have not been reported and for others there are no alternative tariffs.
* EU alternative tariff average: excluding Cyprus

**Figure 4: EEA average retail price per minute for intra-EEA roaming voice calls made: Eurotariff and alternative tariffs (EU only for Q2 2009 - Q1 2010)**

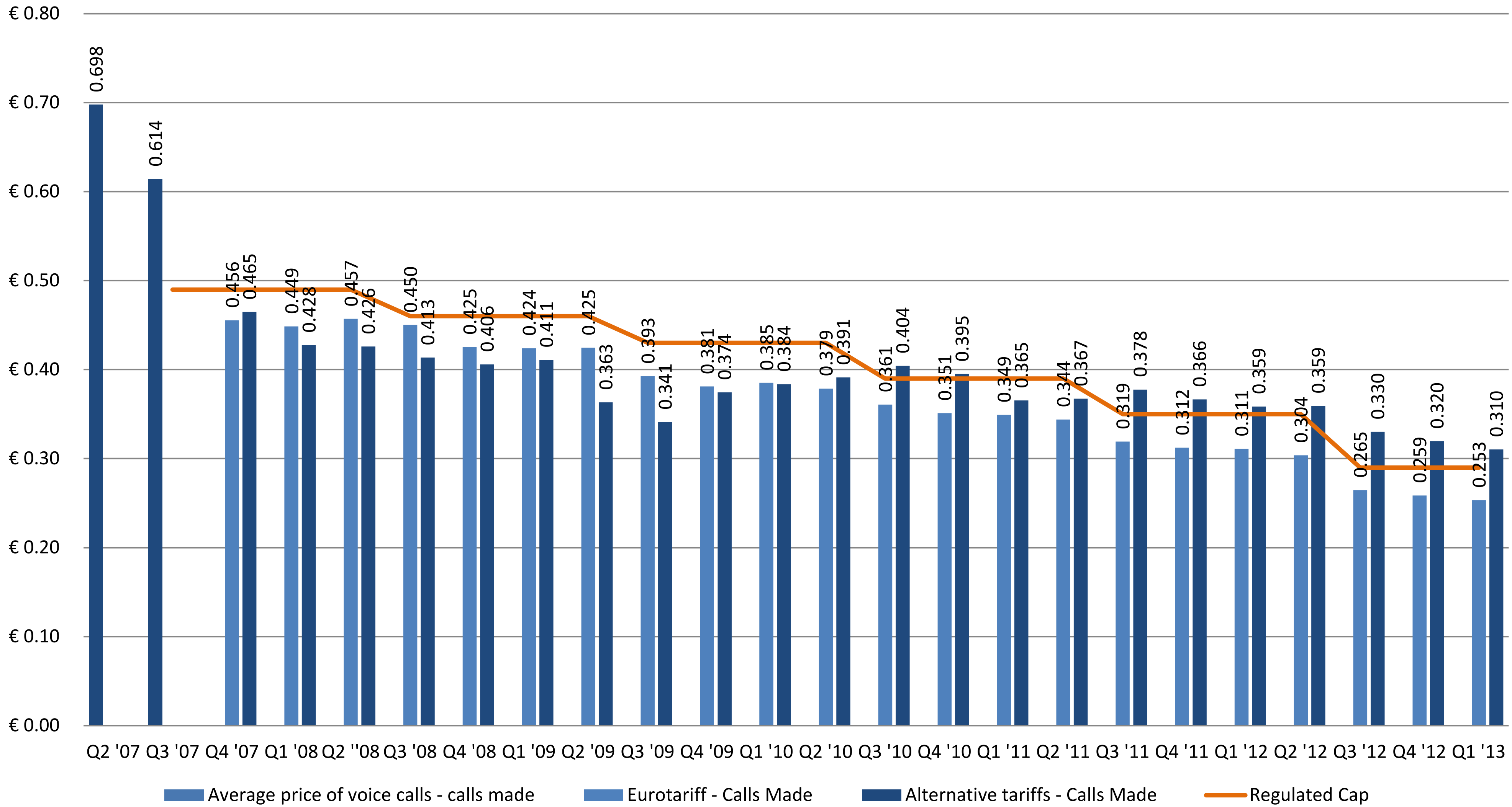
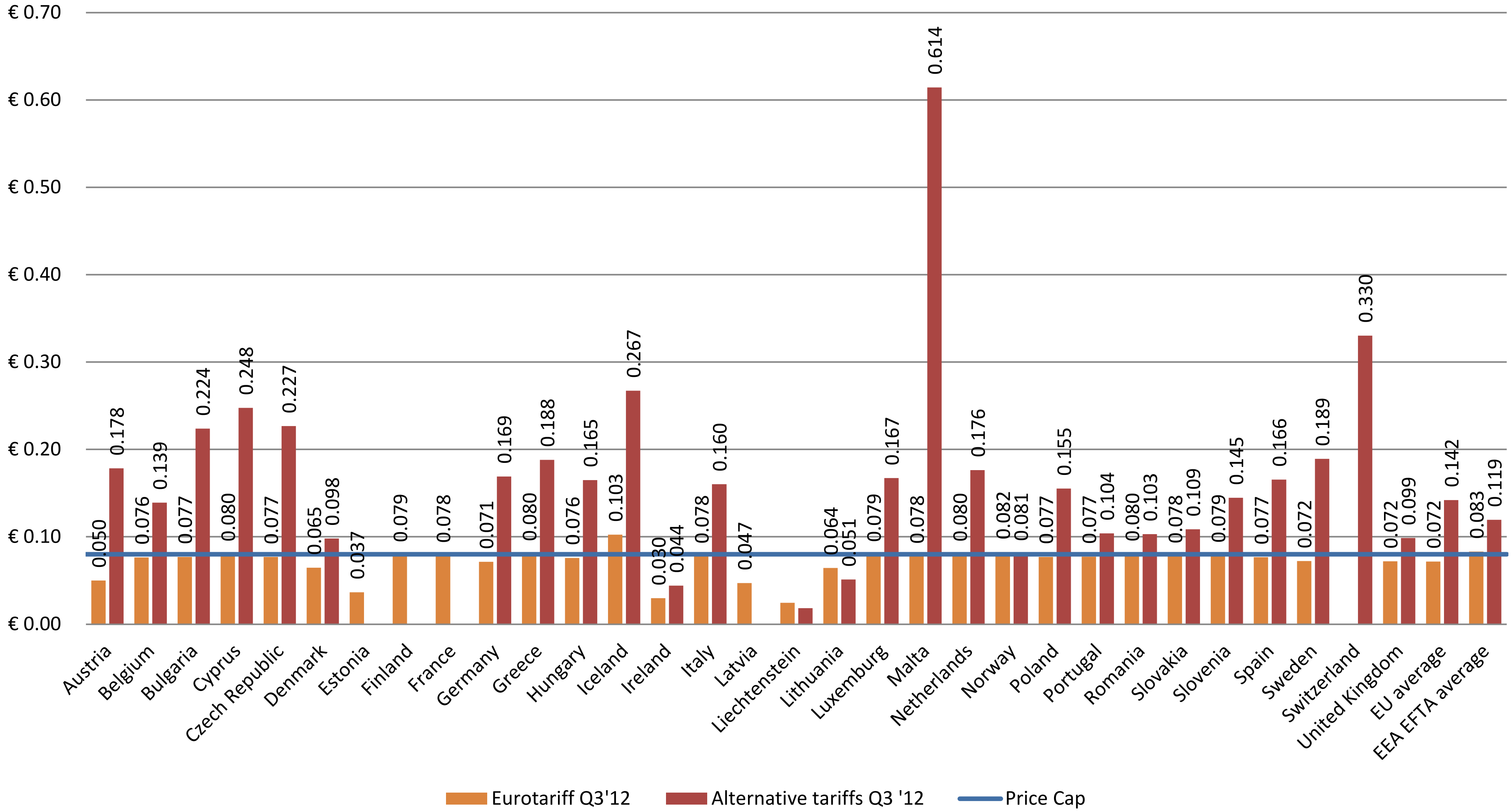
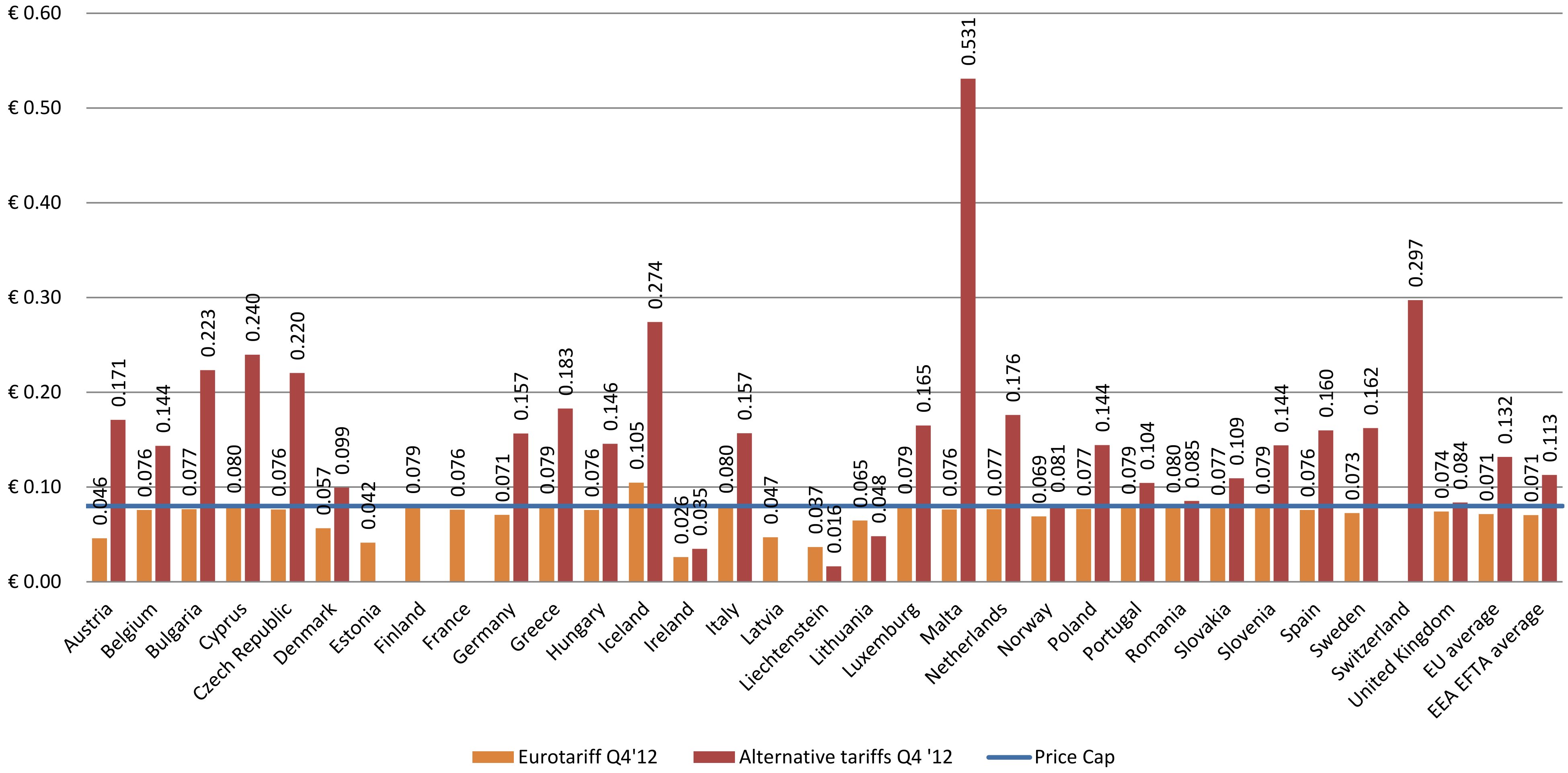


**Figure 5: Average retail price per minute for intra-EEA roaming voice calls received: Eurotariff and alternative tariffs***



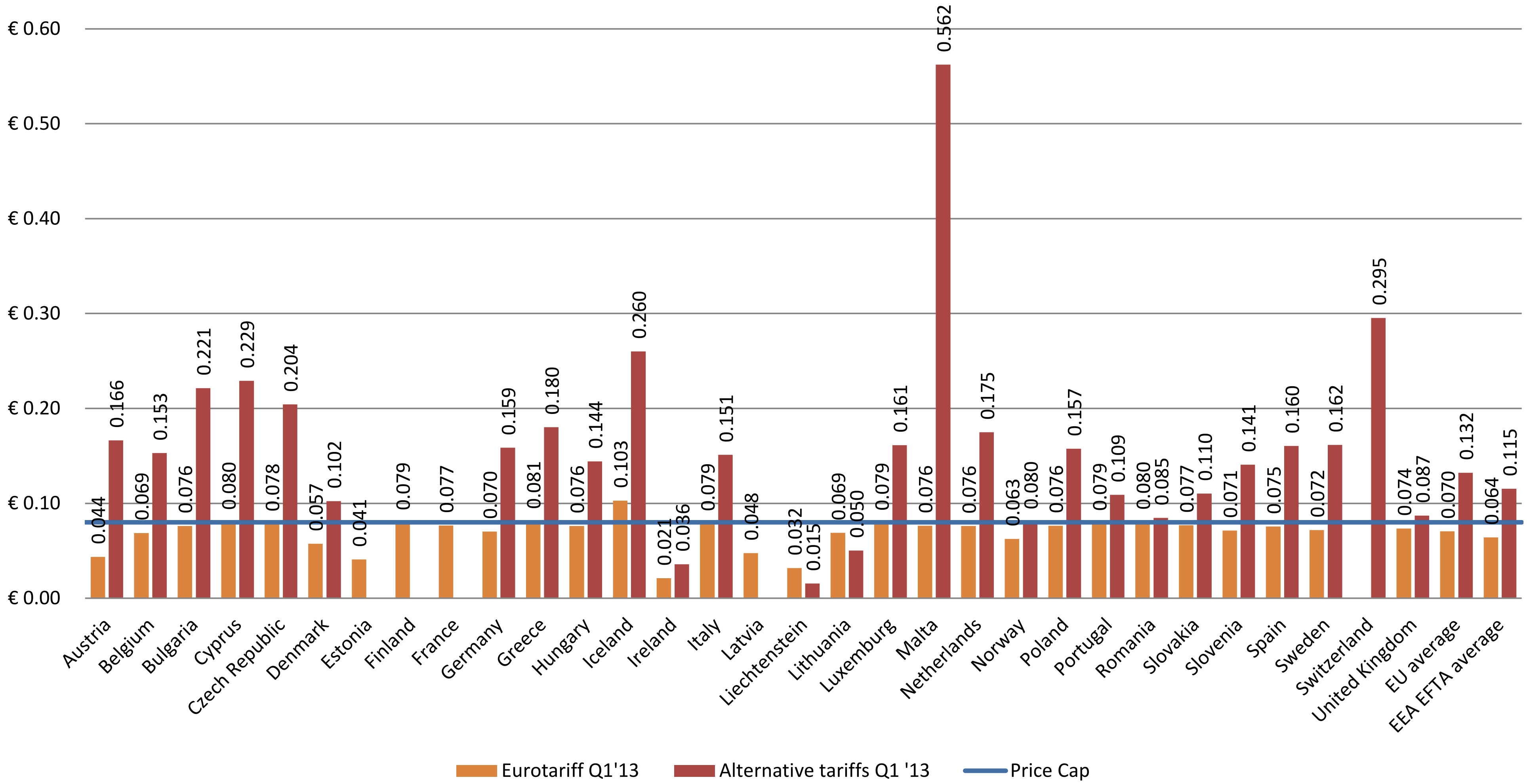

*The German average for alternative tariffs has been calculated based on actual minutes instead of billed minutes
Data for alternative tariffs for some countries have not been reported and for others there are no alternative tariffs.
* EU alternative tariff average: excluding Cyprus

**Figure 6: Average retail price per minute for intra-EEA roaming voice calls received: Eurotariff and alternative tariffs***



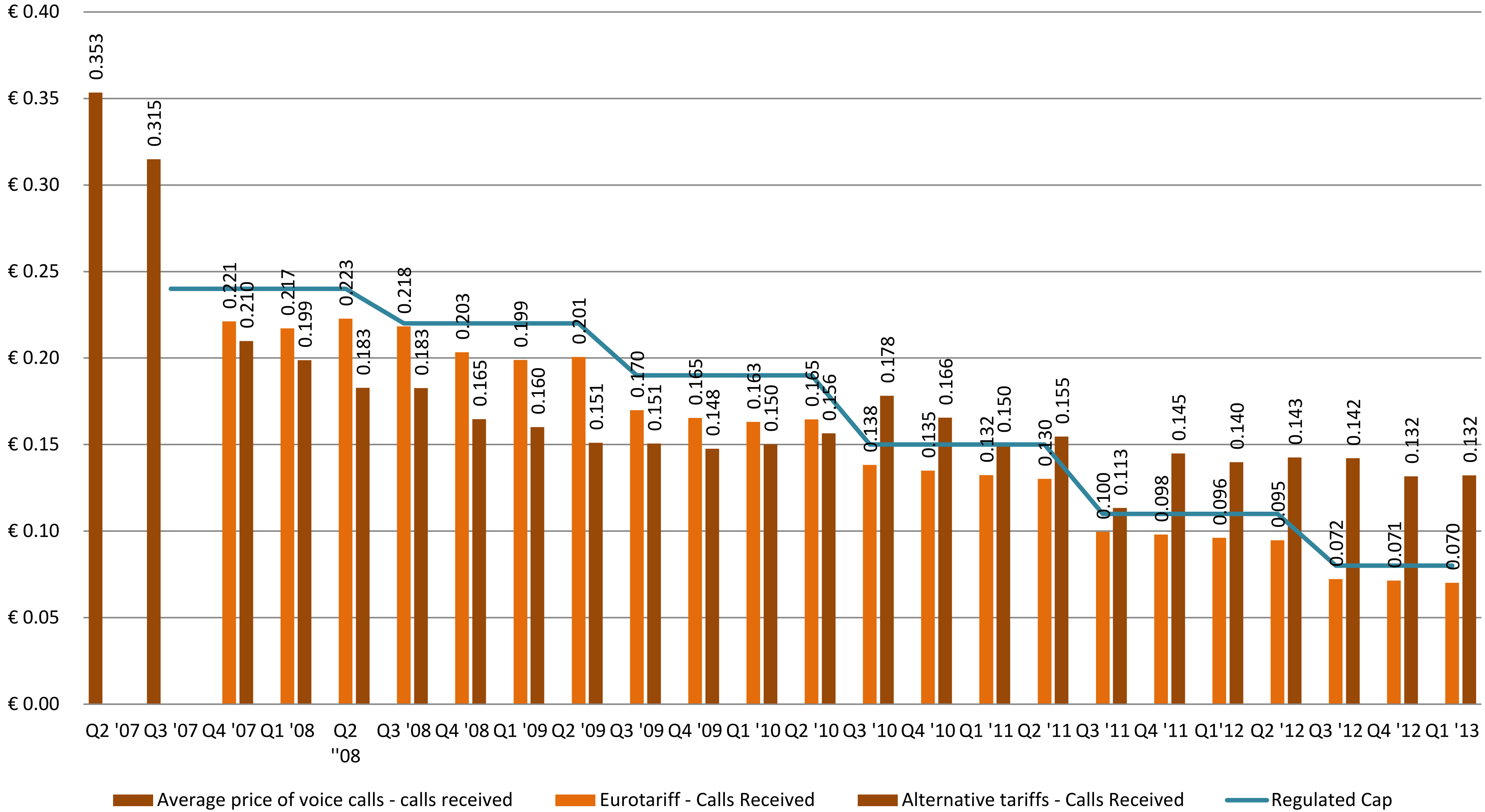

*The German average for alternative tariffs has been calculated based on actual minutes instead of billed minutes
Data for alternative tariffs for some countries have not been reported and for others there are no alternative tariffs.
* EU alternative tariff average: excluding Cyprus

**Figure 7: Average retail price per minute for intra-EEA roaming voice calls received: Eurotariff and alternative tariffs**



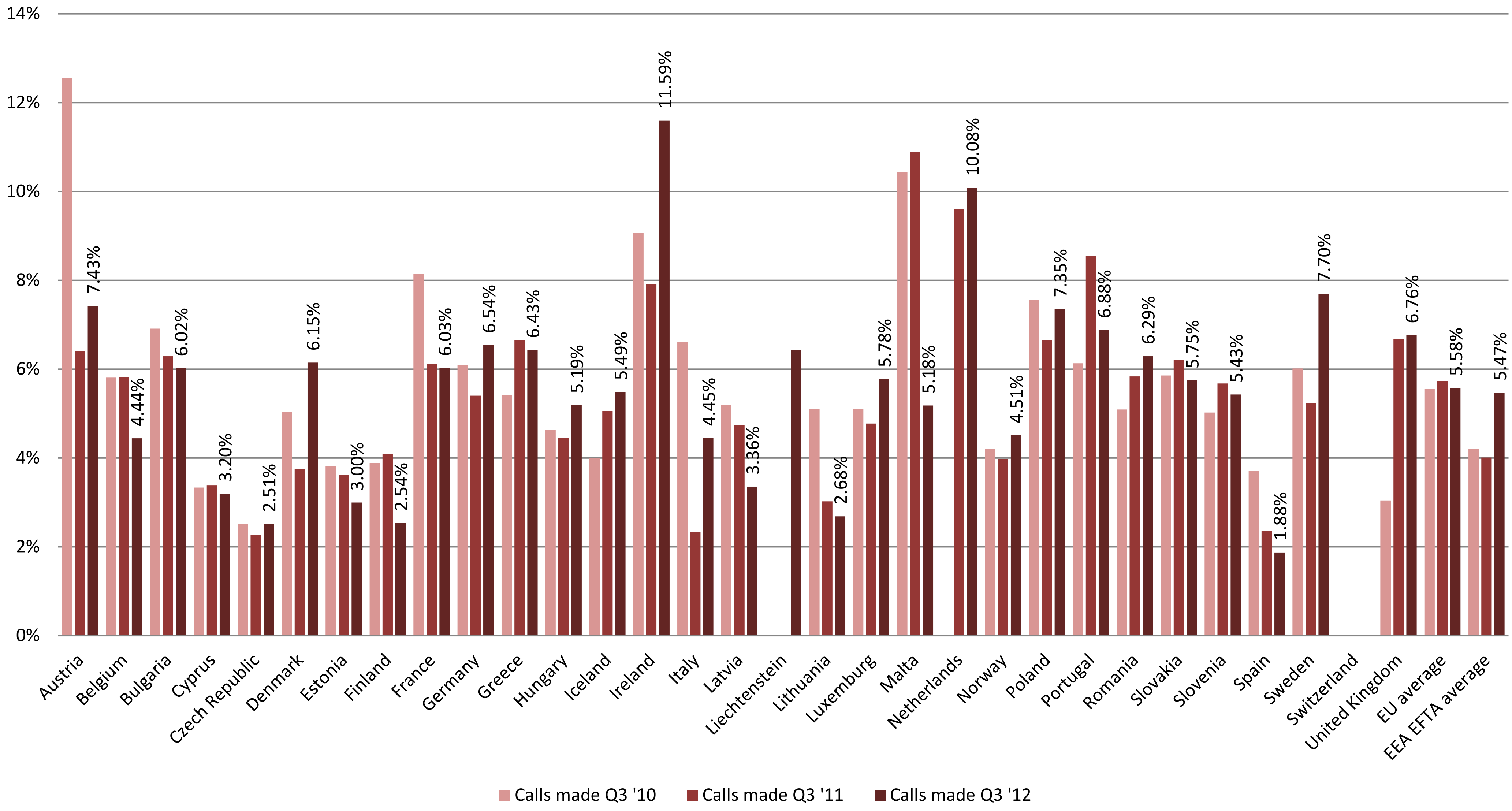

*The German average for alternative tariffs has been calculated based on actual minutes instead of billed minutes
Data for alternative tariffs for some countries have not been reported and for others there are no alternative tariffs.
* EU alternative tariff average: excluding Cyprus

**Figure 8: EEA average retail price per minute for intra-EEA retail roaming voice calls received: Eurotariff and alternative tariffs (EU only for Q2 2009 - Q1 2010)**



# Surcharge for roaming voice calls made

**Figure 9: Surcharge as a result of billed minutes for intra-EEA roaming voice calls made: Eurotariff**



# Figure 10: Surcharge as a result of billed minutes for intra-EEA roaming voice calls made : Eurotariff

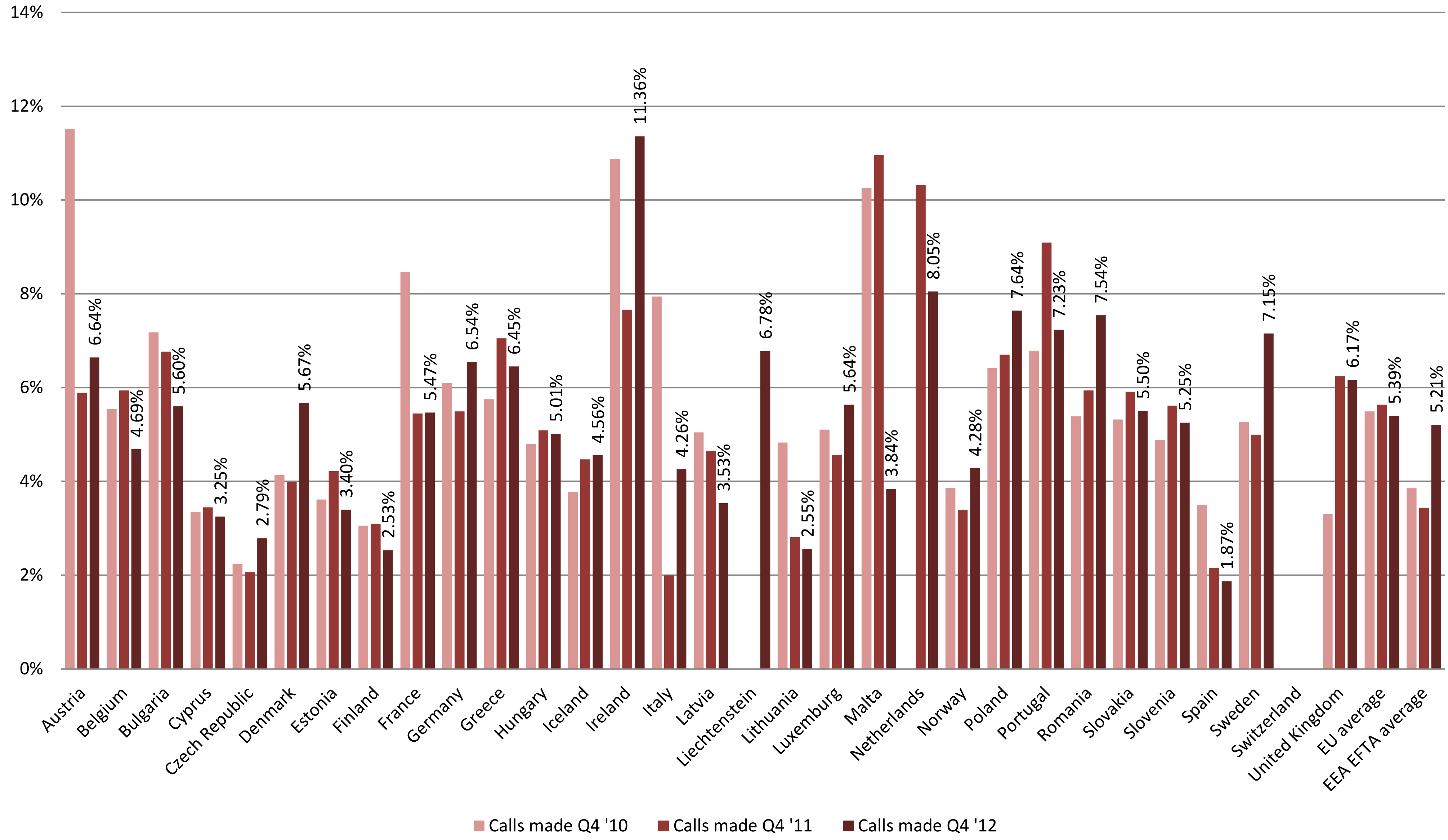
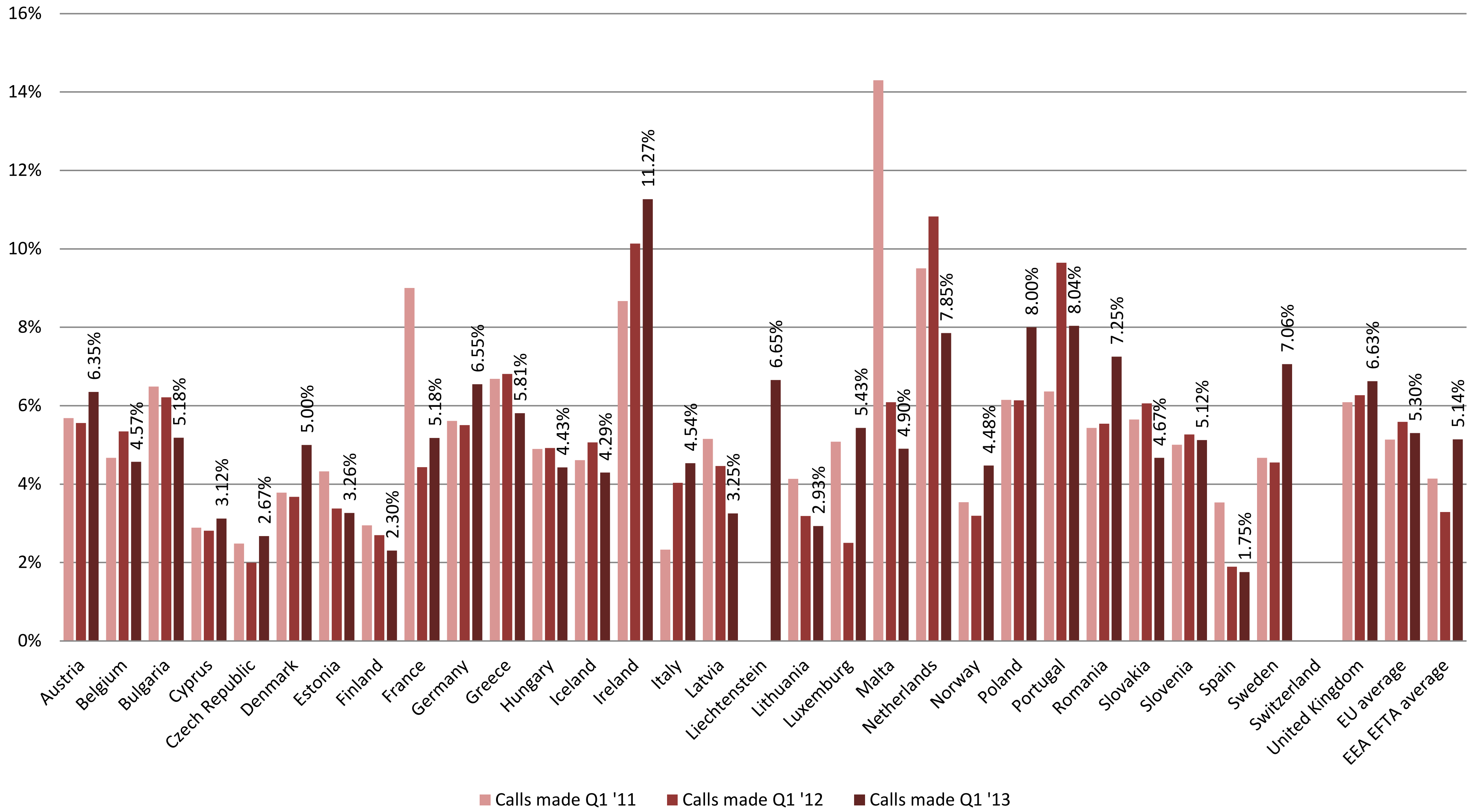
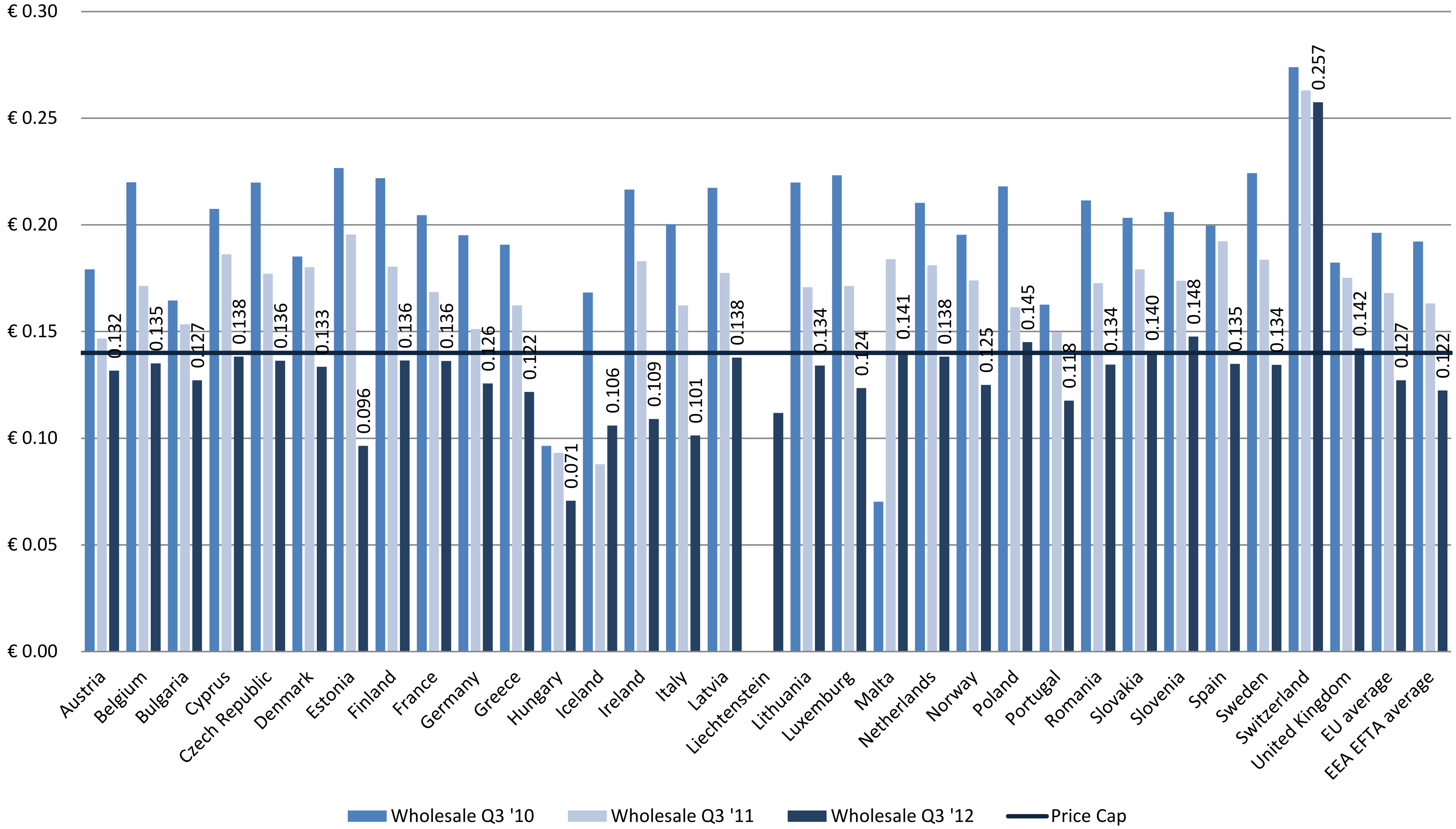


**Figure 11: Surcharge as a result of billed minutes for intra-EEA roaming voice calls made: Eurotariff**



# Wholesale prices

**Figure 12: Average wholesale price per minute for intra-EEU roaming voice calls: charges to non-group companies (wholesale roaming inbound)**



## Figure 13: Average wholesale price per minute for intra-EEU roaming voice calls: charges to non-group companies

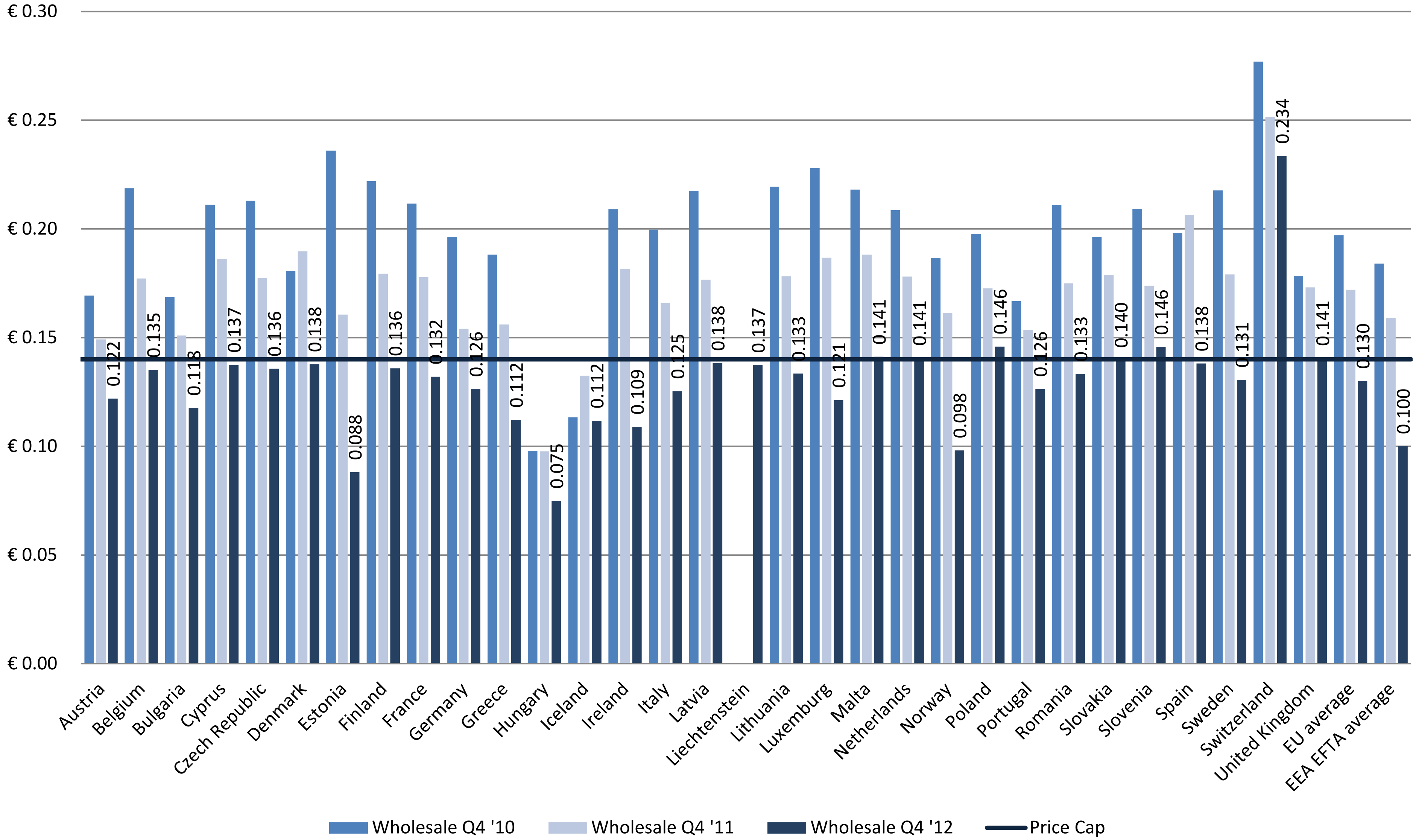


**Figure 14: Average wholesale price per minute for intra-EEU roaming voice calls: charges to non-group companies**

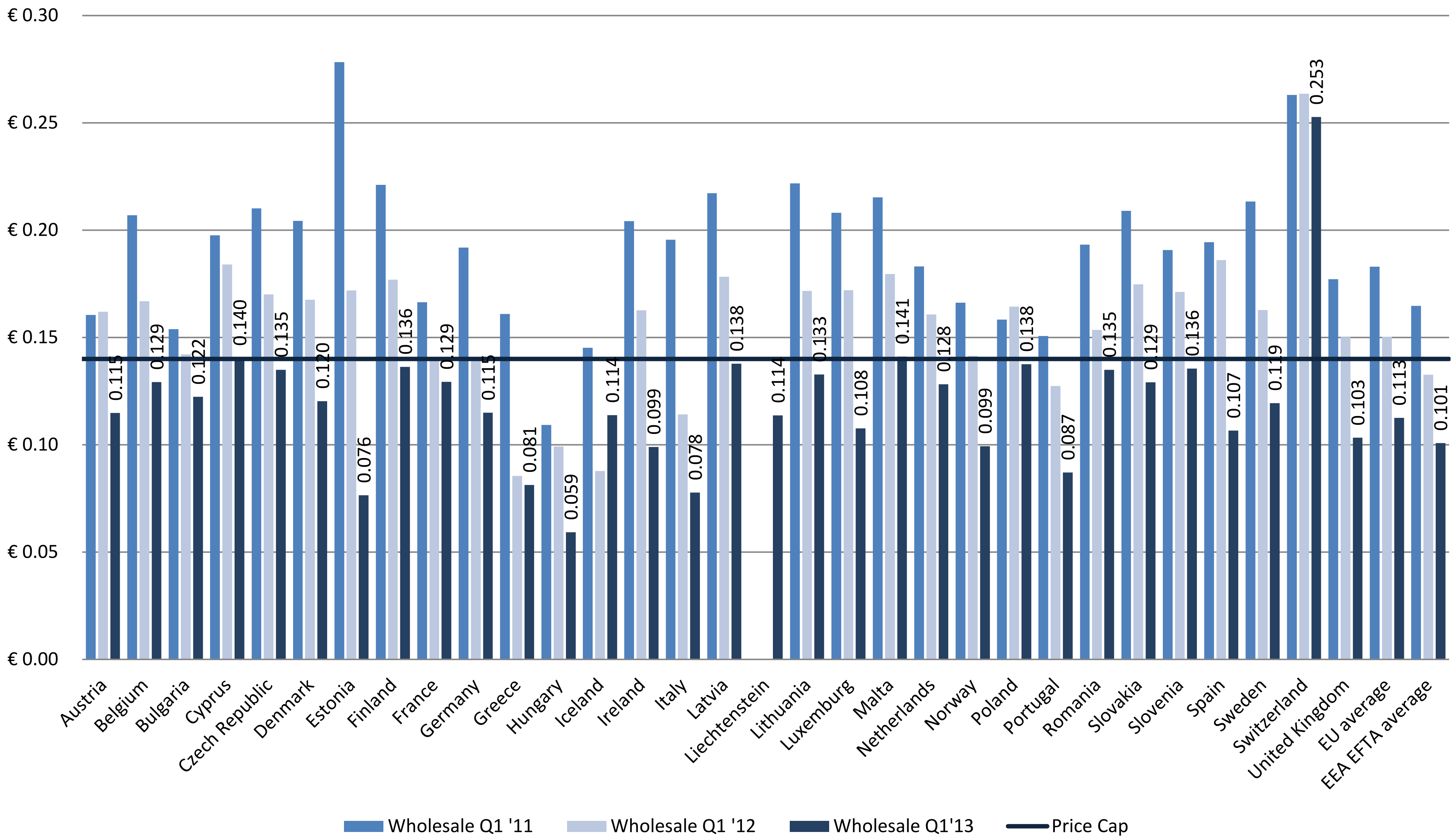
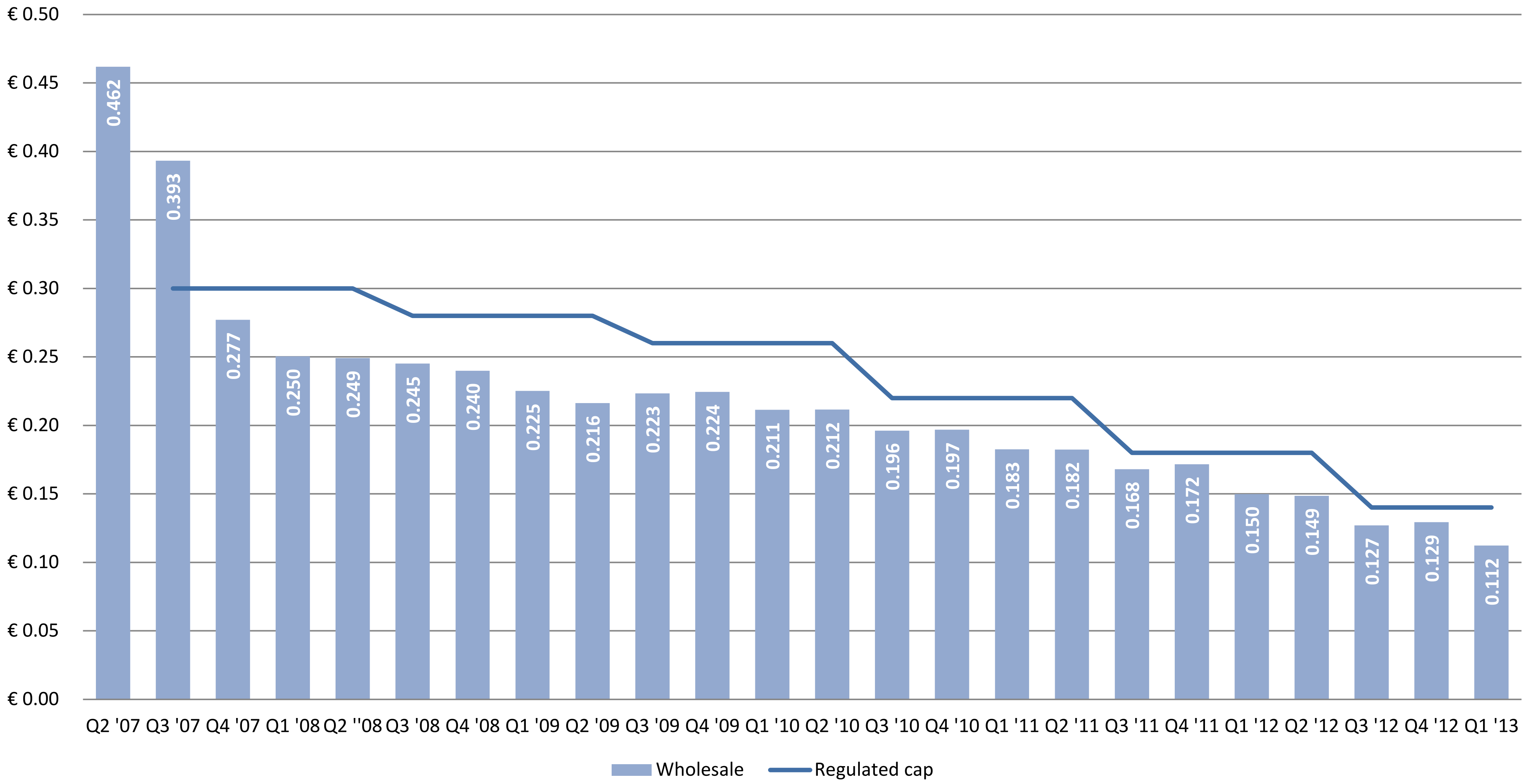
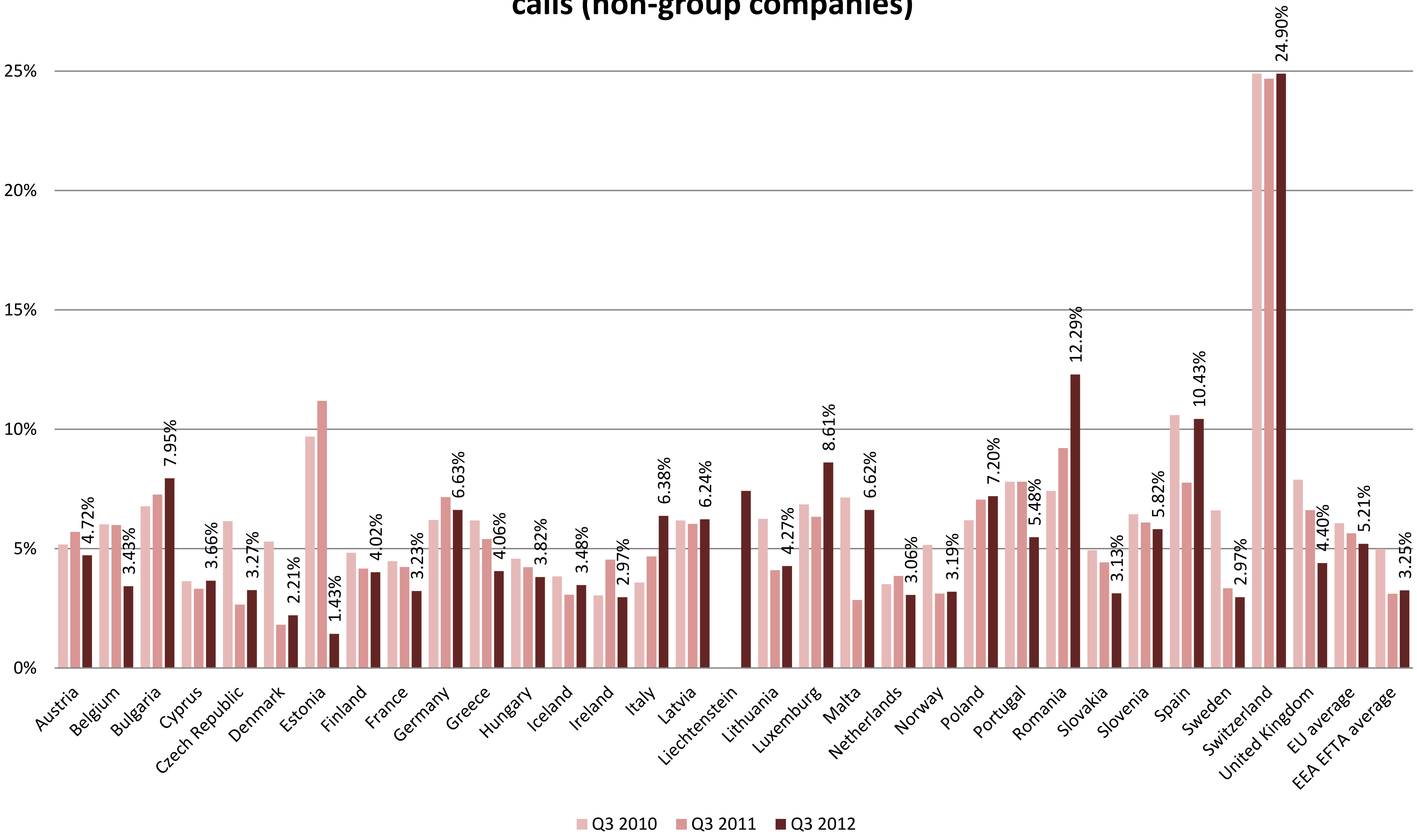


**Figure 15: EEA average price per minute for wholesale non-group roaming voice calls (EU only for Q2 2009 - Q1 2010)**



# Surcharge for wholesale voice calls

# Figure 16: Surcharge as a result of billed minutes for intra-EEA wholesale voice calls (non-group companies)



# Figure 17: Surcharge as a result of billed minutes for intra-EEA wholesale voice calls (non-group companies)

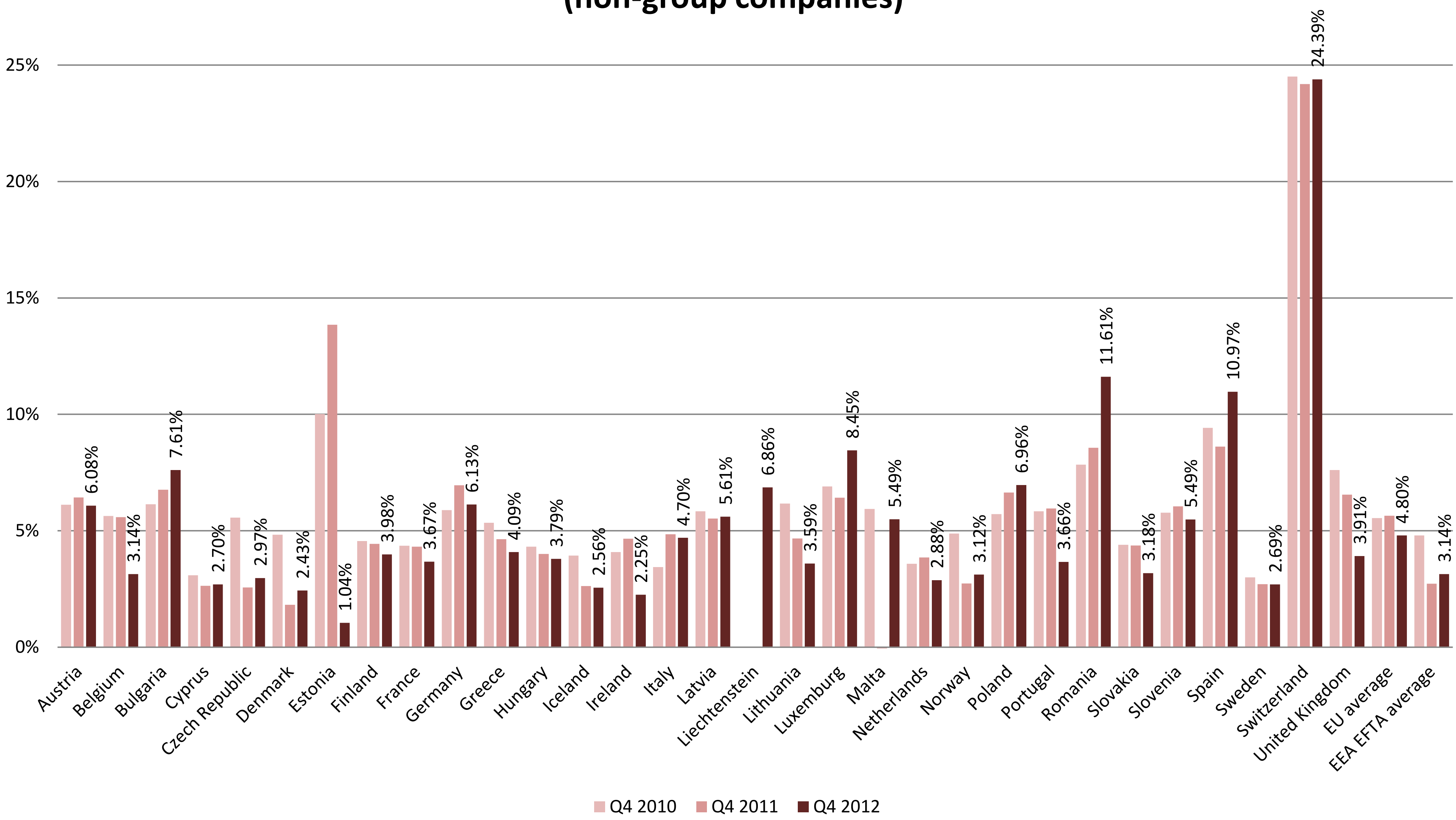
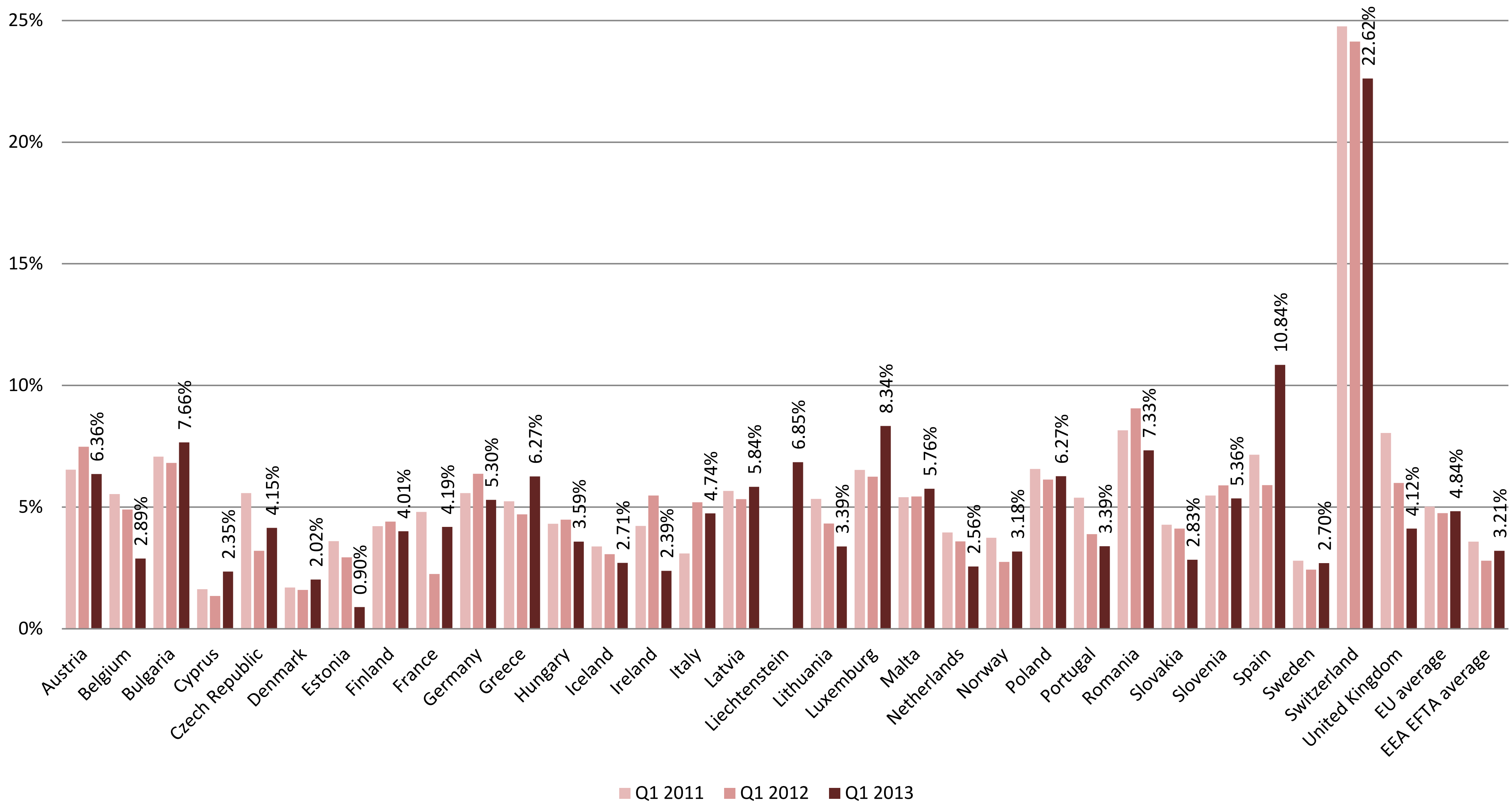


**Figure 18: Surcharge as a result of billed minutes for intra-EEA wholesale voice calls (non-group companies)**



# Percentage of calls made/received

**Figure 19: EEA percentage of calls made: Eurotariff and alternative tariffs (millions of minute)**

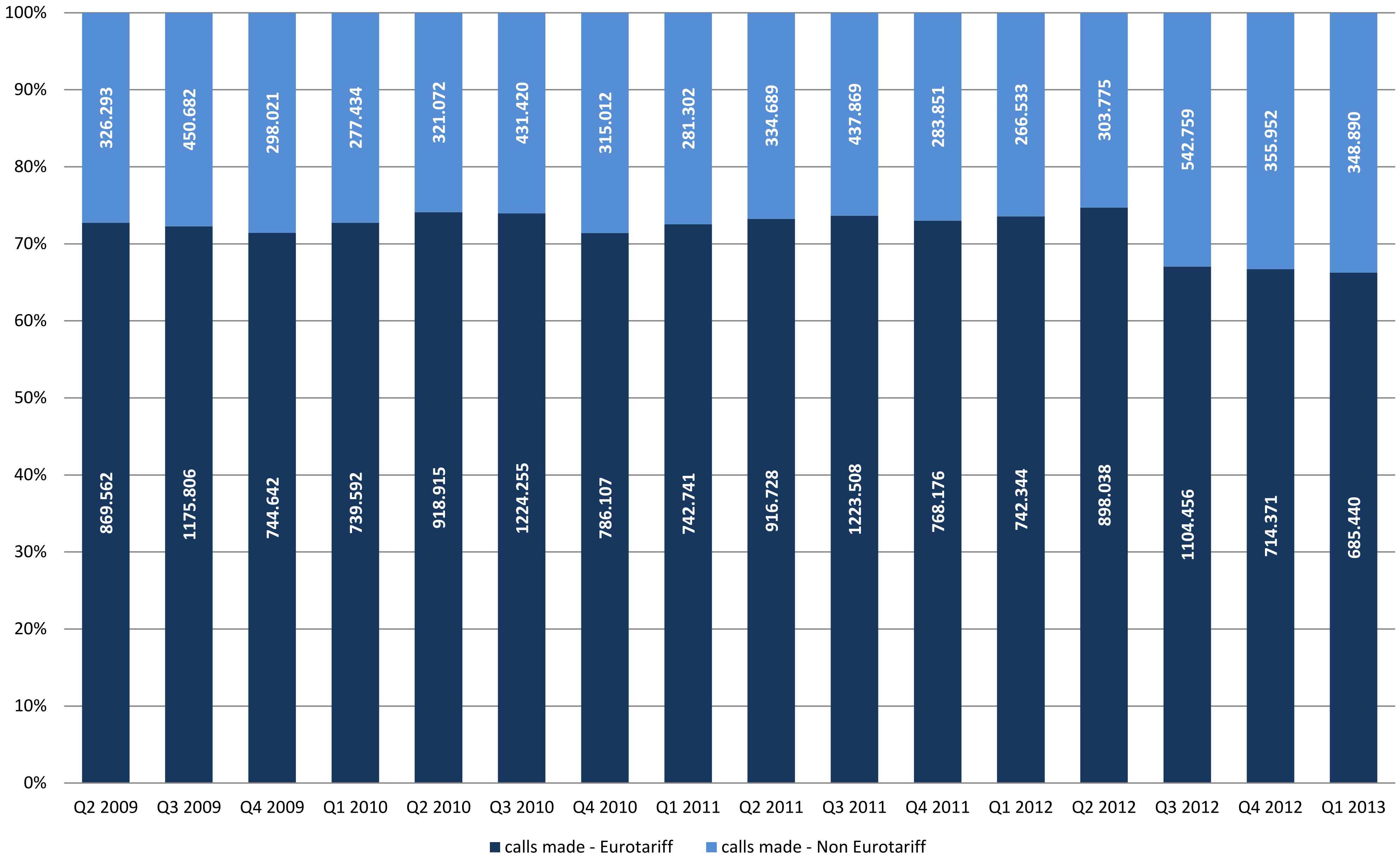
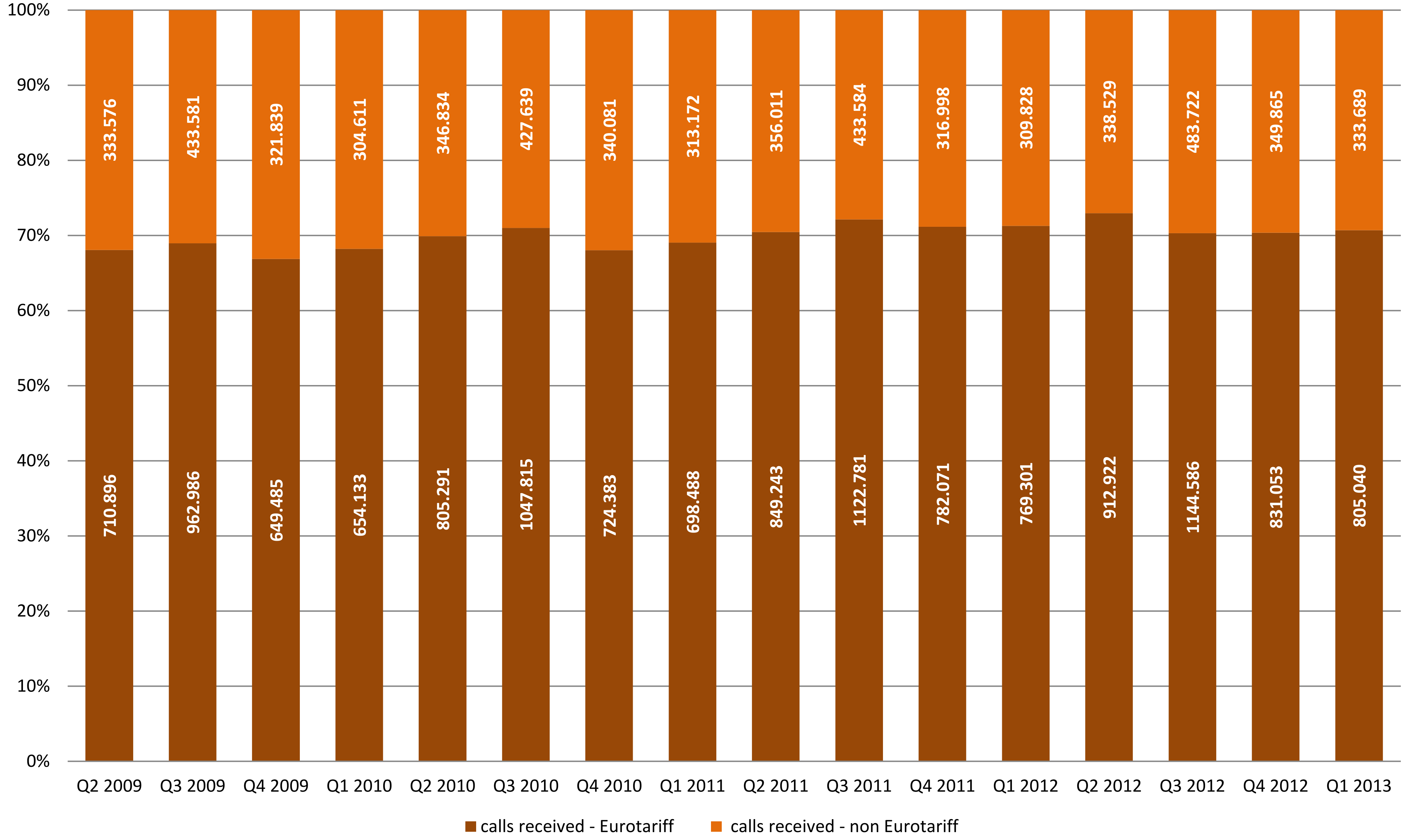


**Figure 20: EEA percentage of calls received: Eurotariff and alternative tariffs (millions of minutes)**



# Volumes of retail roaming voice calls

**Figure 21: Volumes of intra-EEA roaming calls made in Q3 2012**
**Index**
**(Actual minutes, Q3 2008 = 100)**

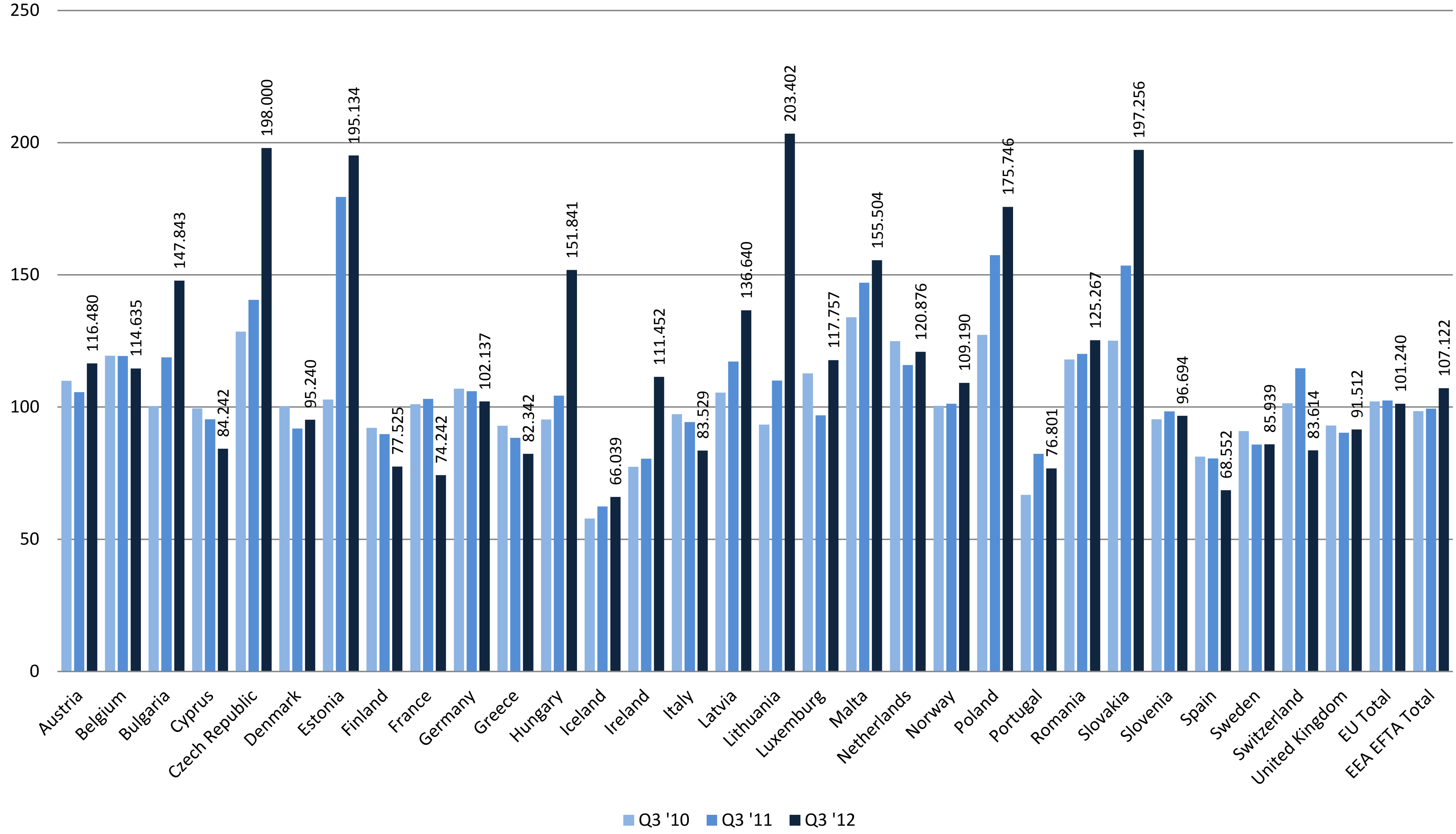
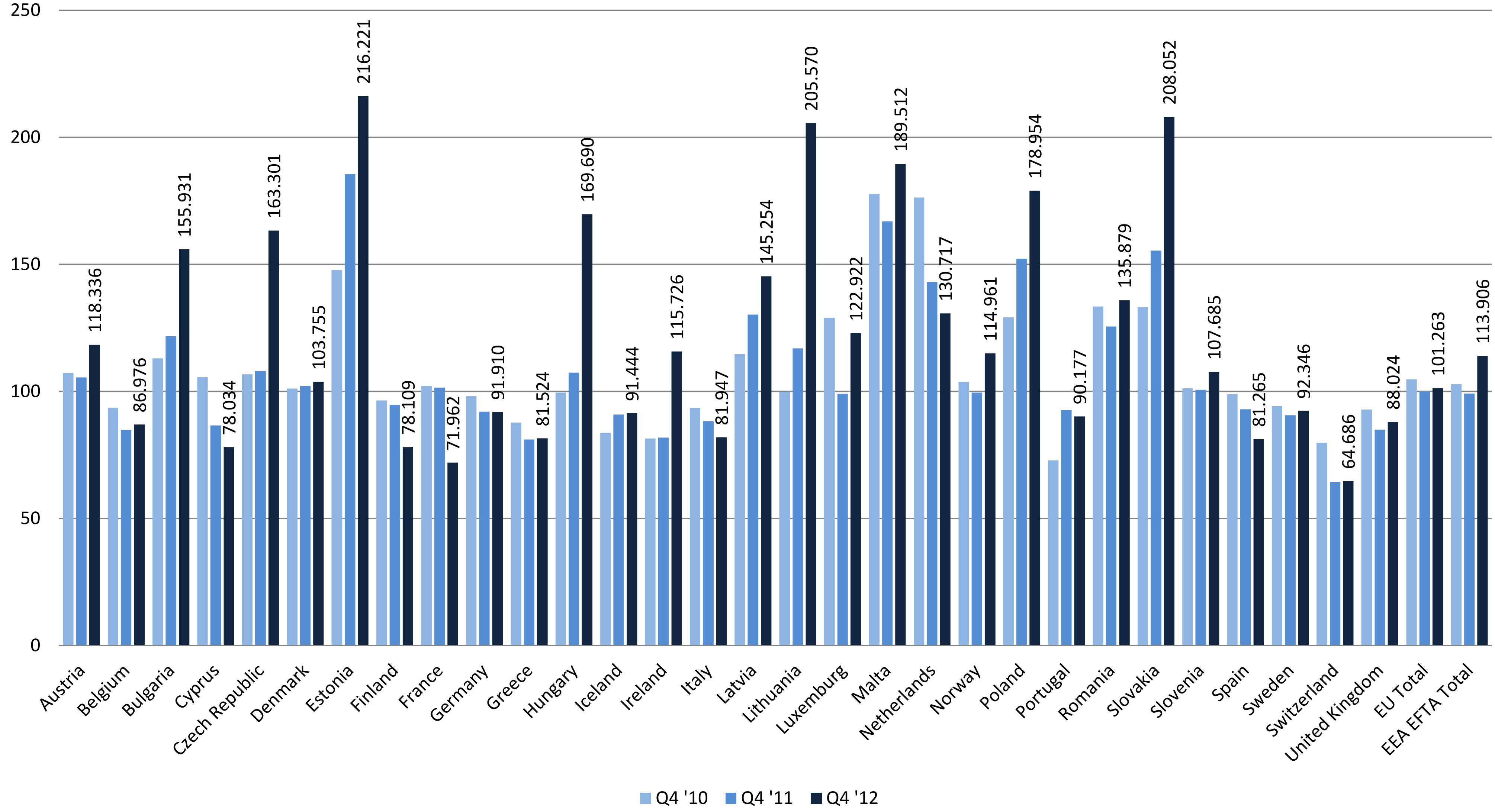
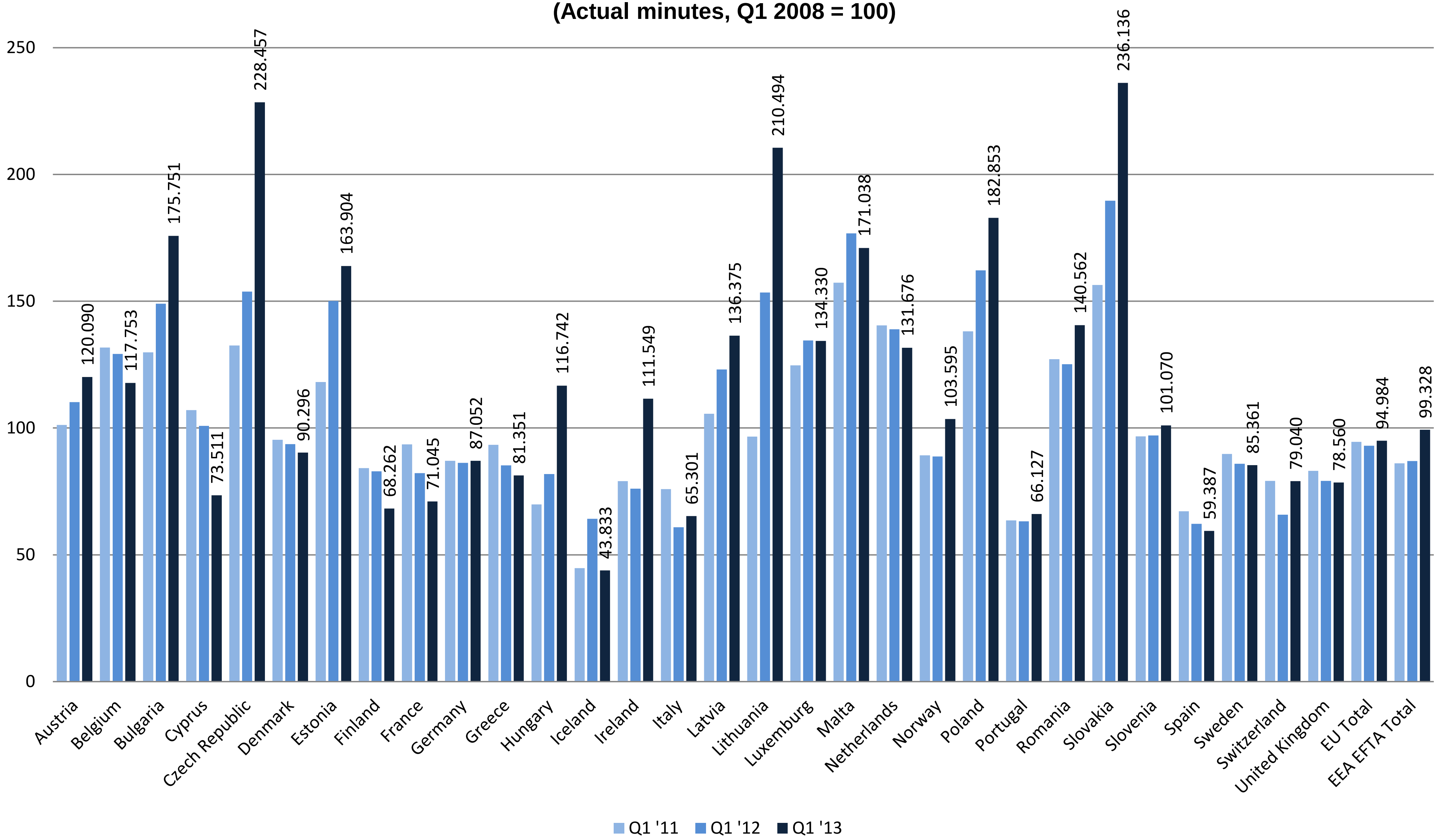


**Figure 22: Volumes of intra-EEA roaming calls made in Q4 2012**
**Index**
**(Actual minutes, Q4 2008 = 100)**




Liechtenstein: 0.234 (without based year)

**Figure 23: Volumes of intra-EEA roaming calls made in Q1 2013**
**Index**
**(Actual minutes, Q1 2008 = 100)**




Liechtenstein: 0.216 (without based year)

**Figure 24: Volumes of intra-EEA roaming calls received in Q3 2012**
**Index**
**(Actual minutes, Q3 2008 = 100)**

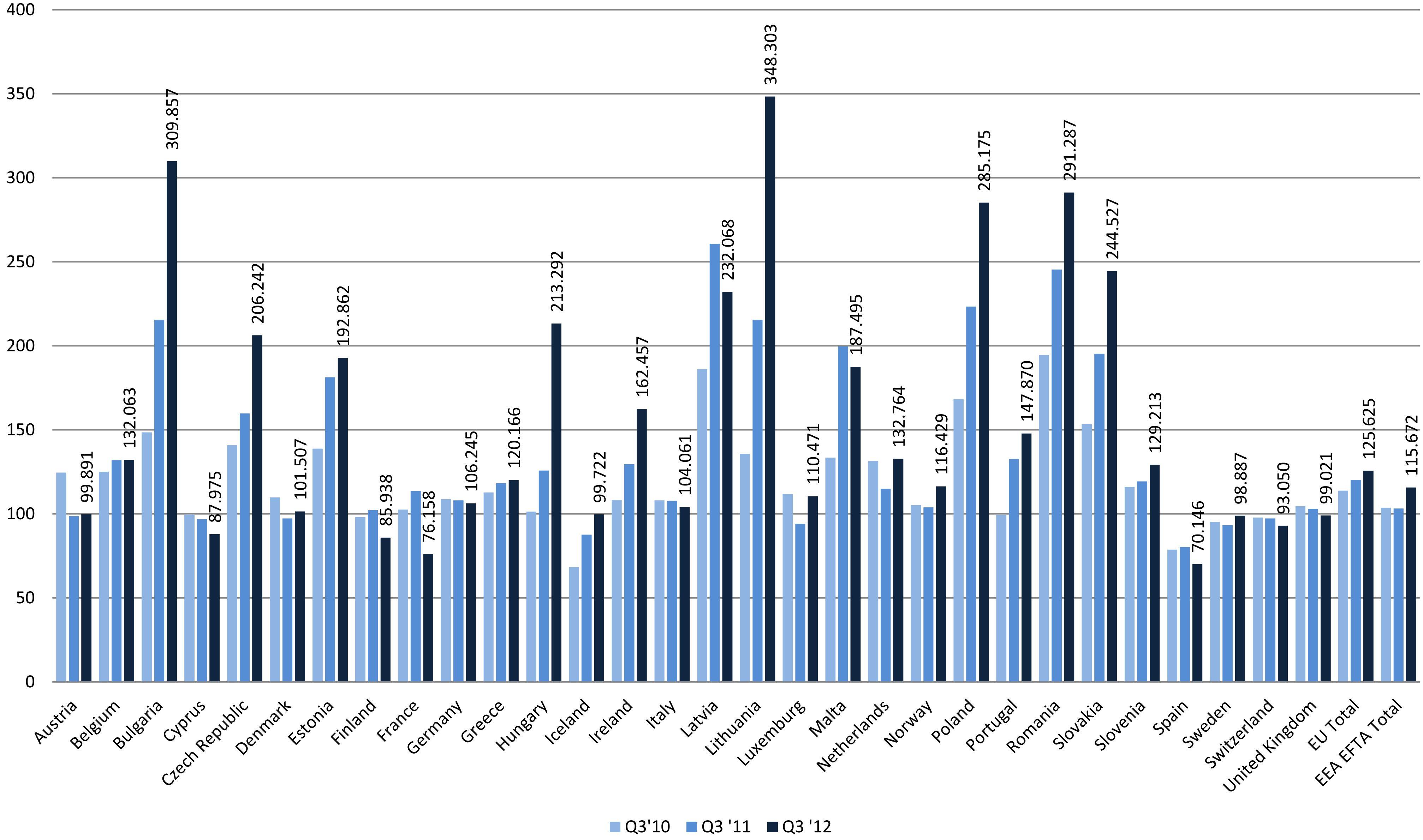
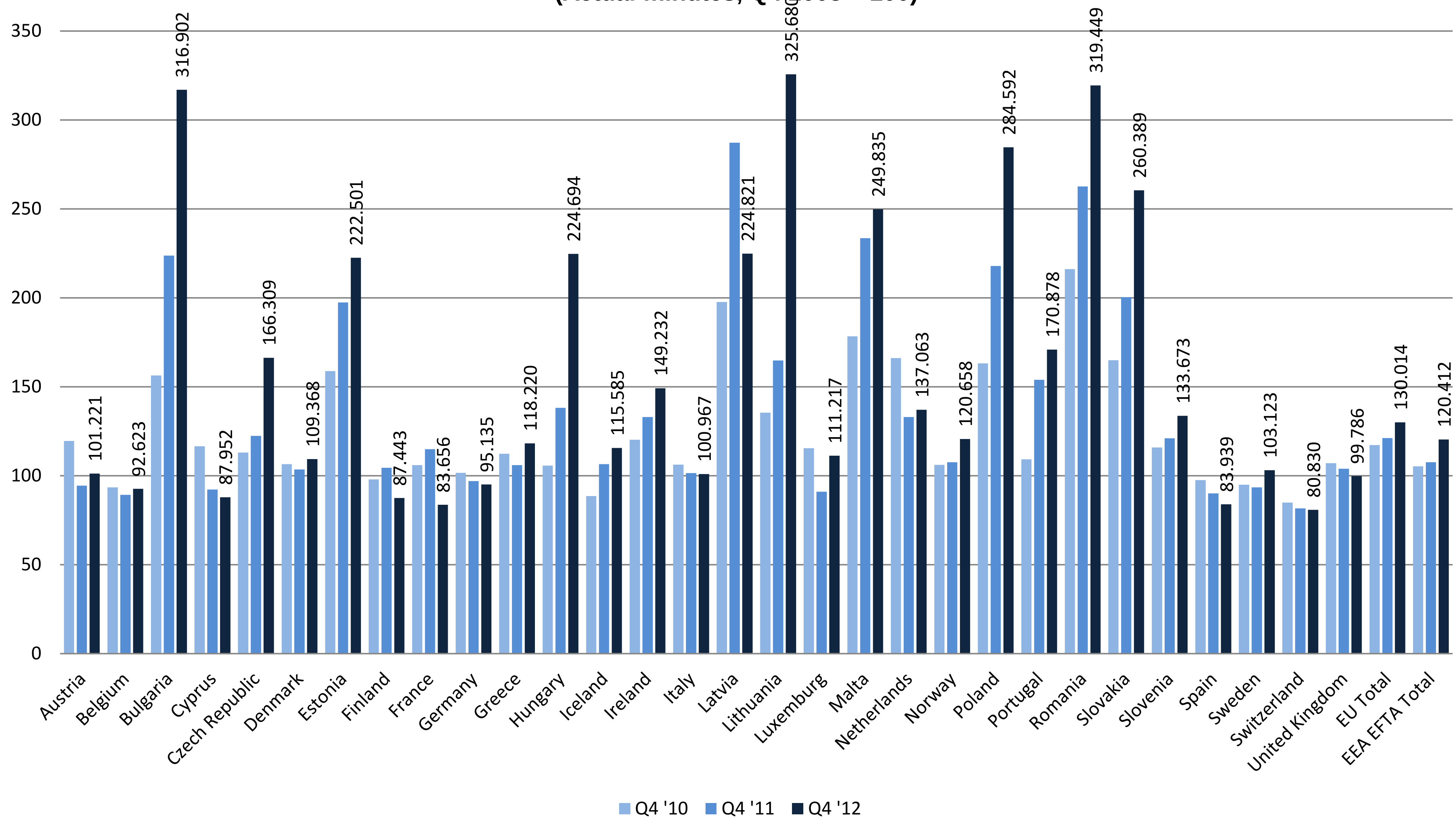
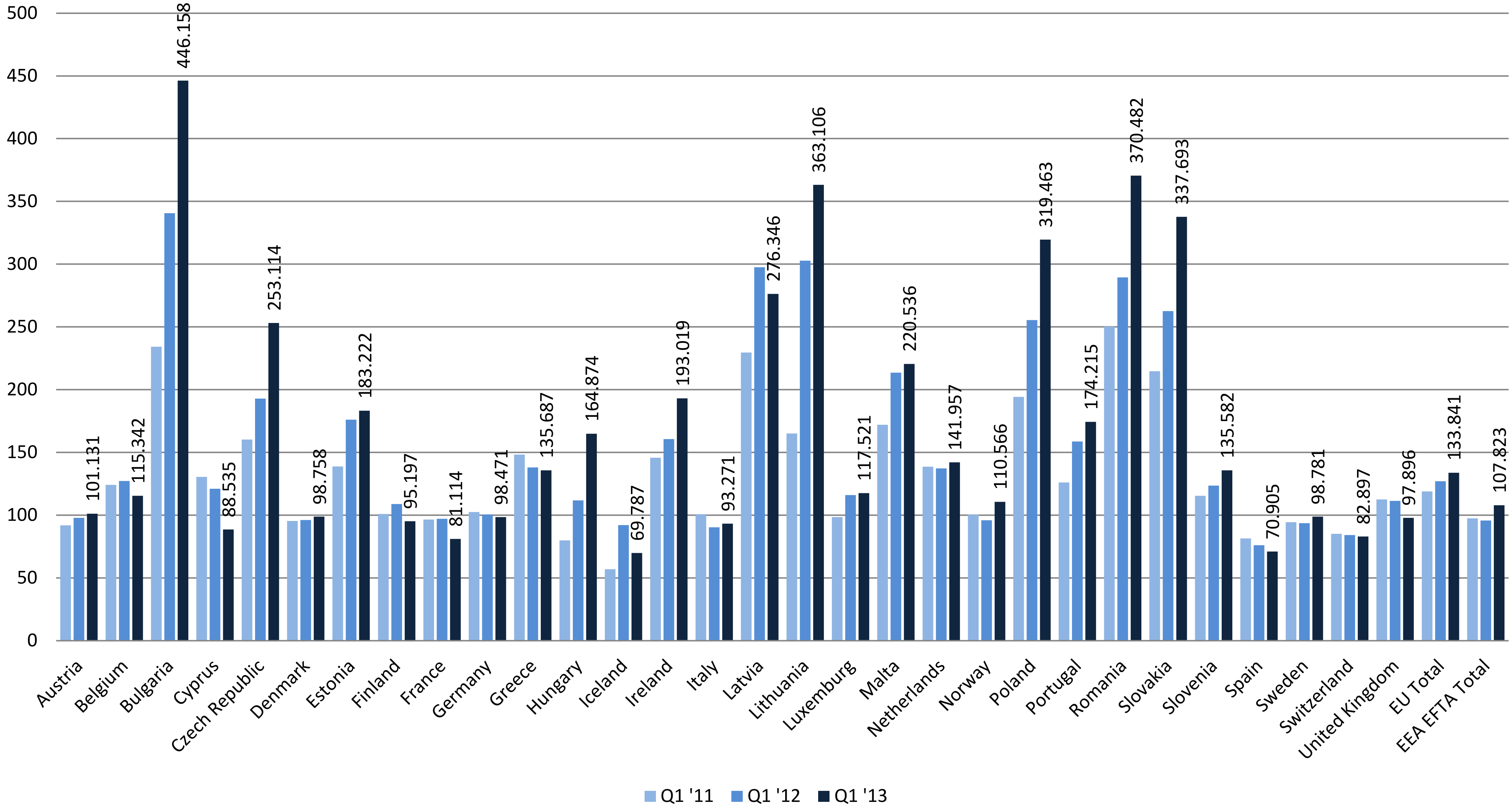


**Figure 25: Volumes of intra-EEA roaming calls received in Q4 2012**
**Index**
**(Actual minutes, Q4 2008 = 100)**




Liechtenstein: 0.212 (without based year)

**Figure 26: Volumes of intra-EEA roaming calls received in Q1 2013**
**Index**
**(Actual minutes, Q1 2008 = 100)**




Liechtenstein: 0.196 (without based year)

# Retail and wholesale prices - outside EEA

# Figure 27: Average retail price per minute for roaming voice calls made by EEA customers outside EEA

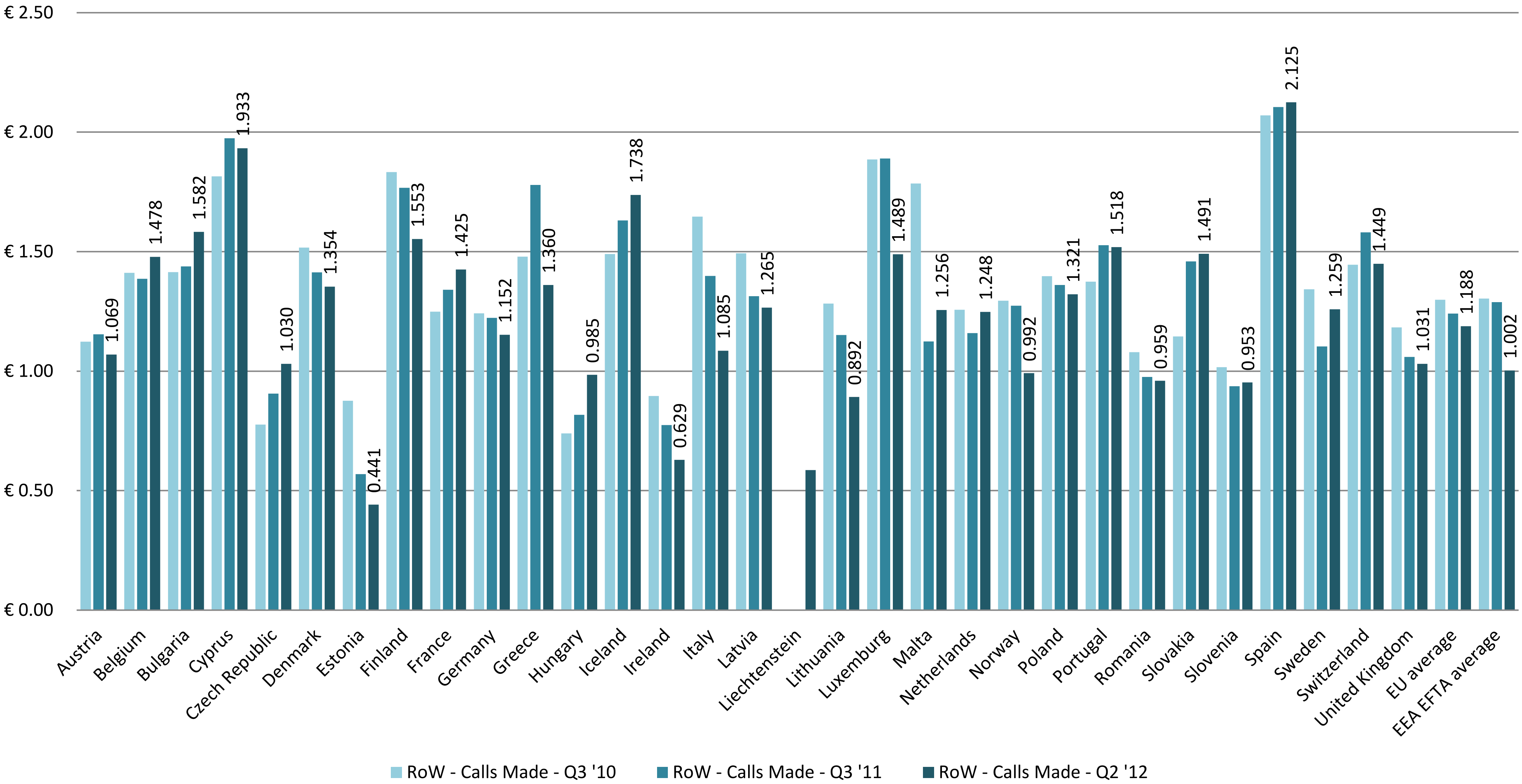
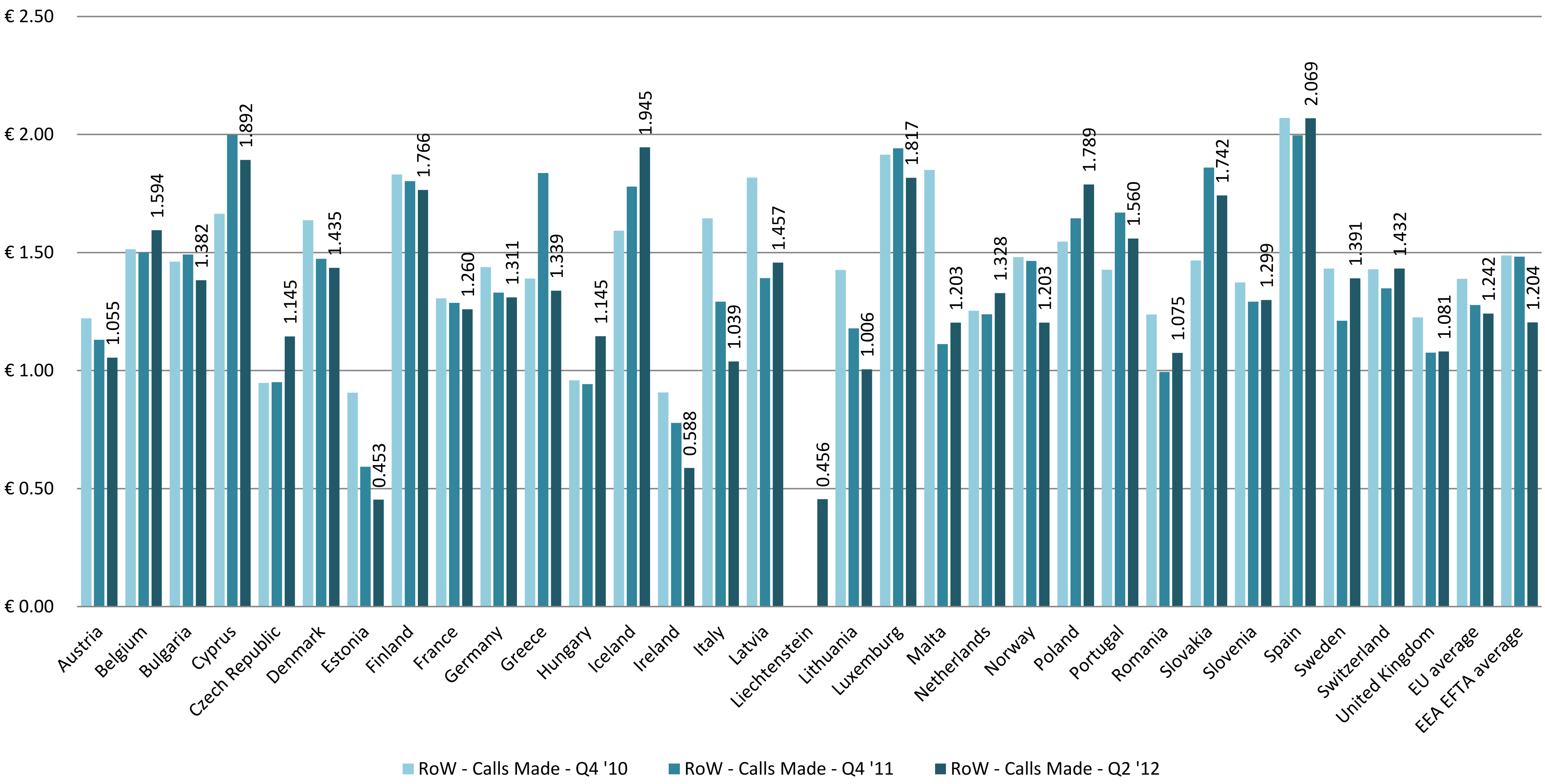


**Figure 28: Average retail price per minute for roaming voice calls made by EEA customers outside EEA**



# Figure 29: Average retail price per minute for roaming voice calls made by EEA customers outside EEA

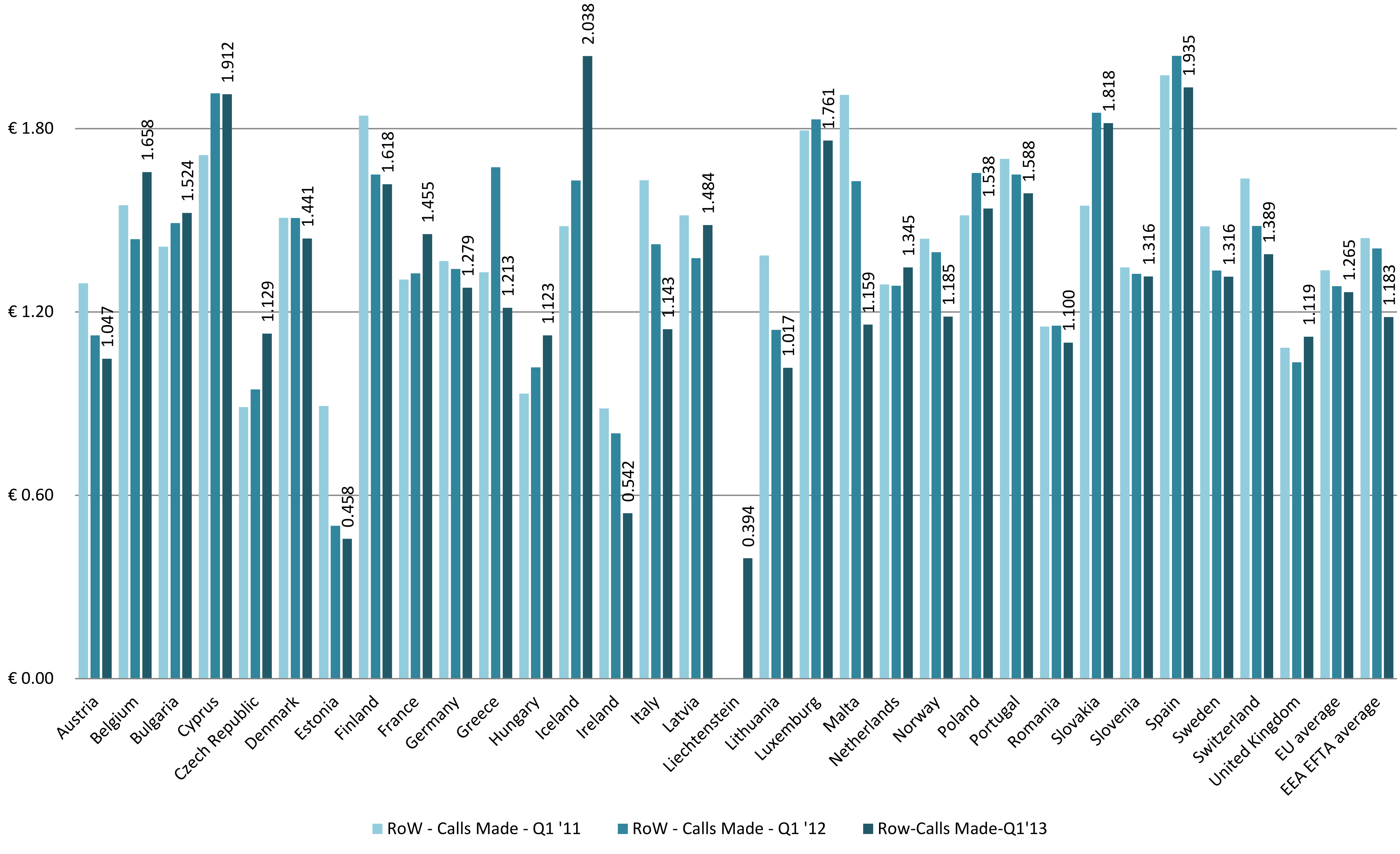


**Figure 30: Average retail price per minute roaming voice calls received by EEA customers outside EEA**

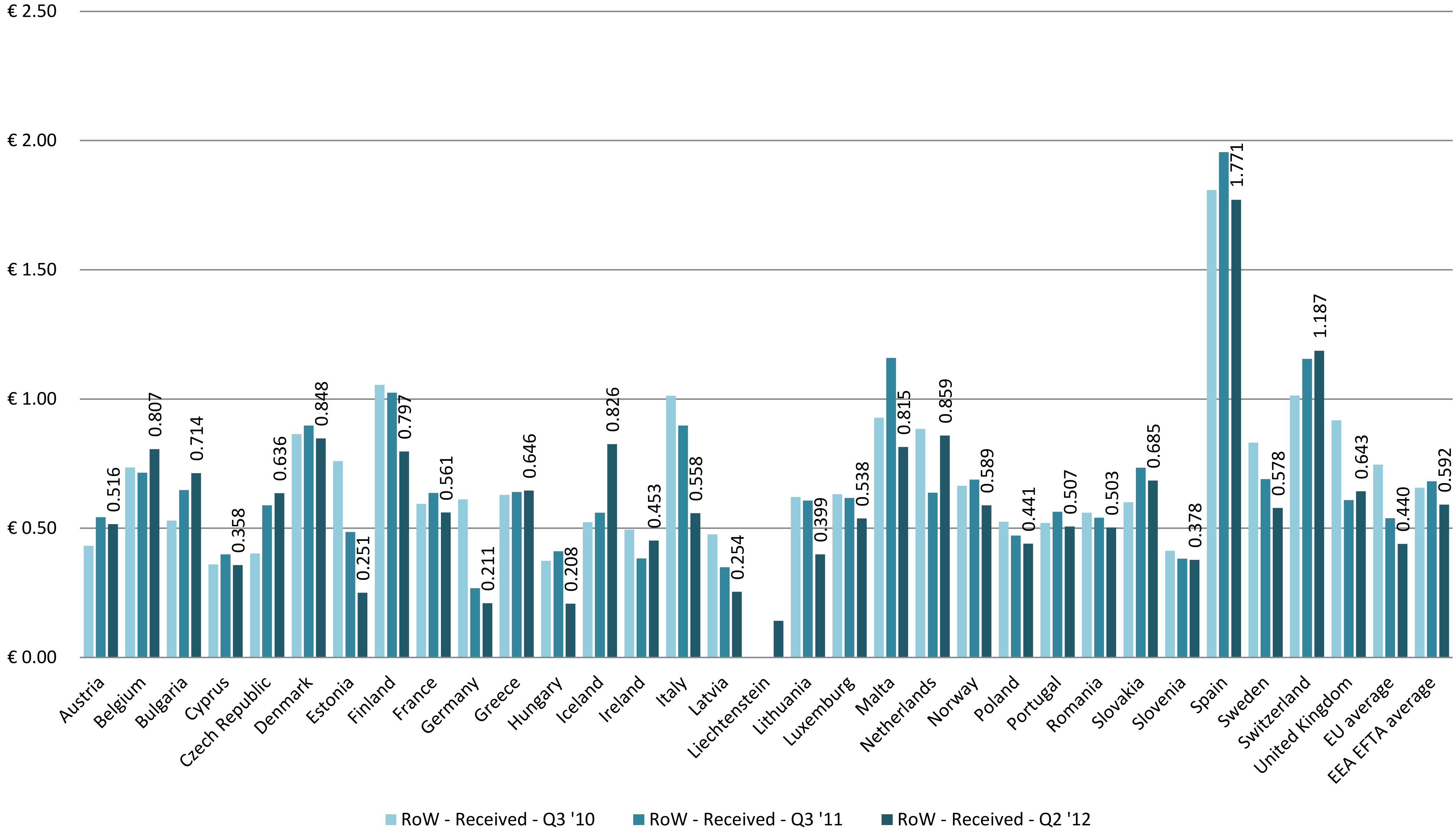
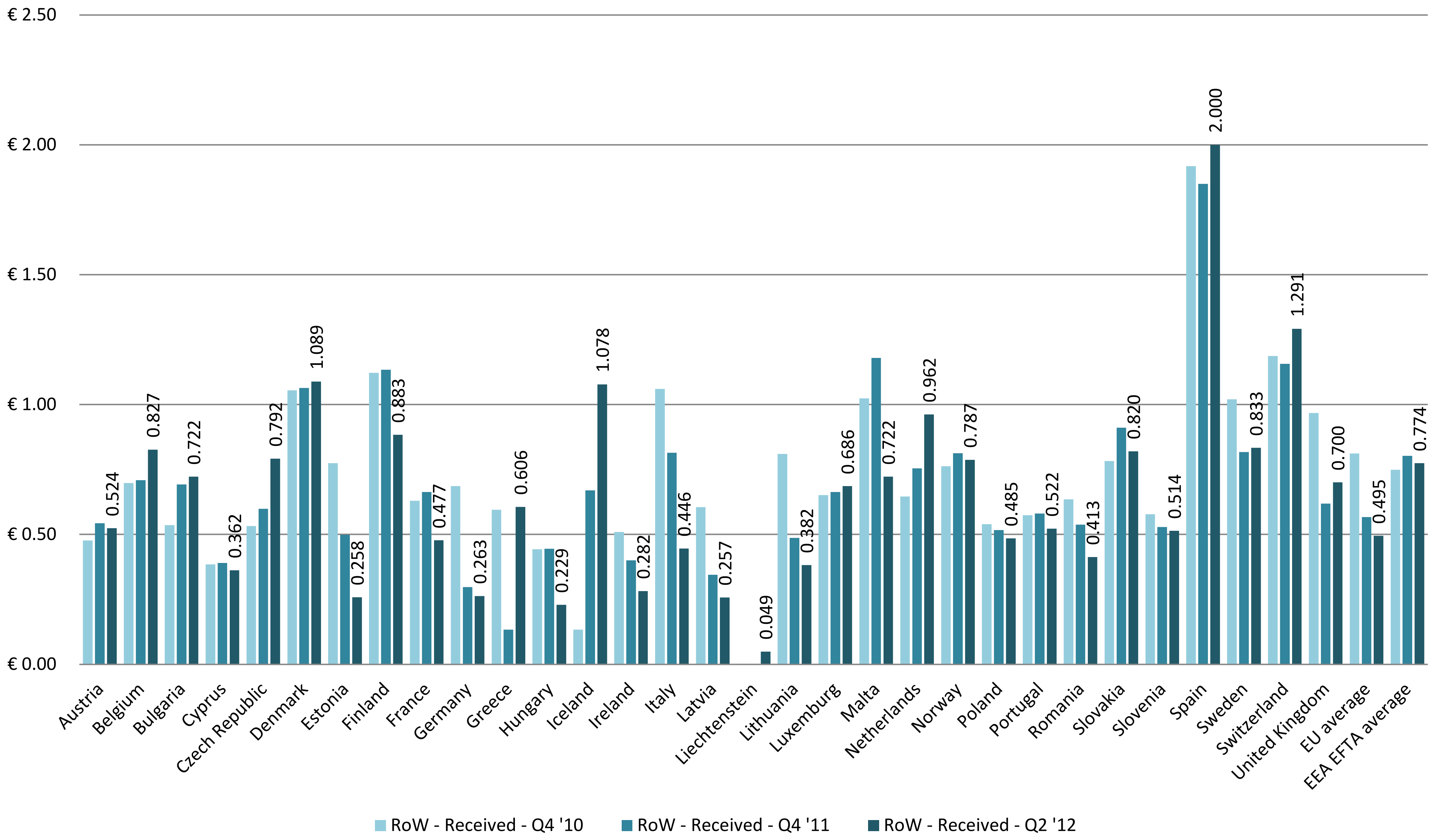
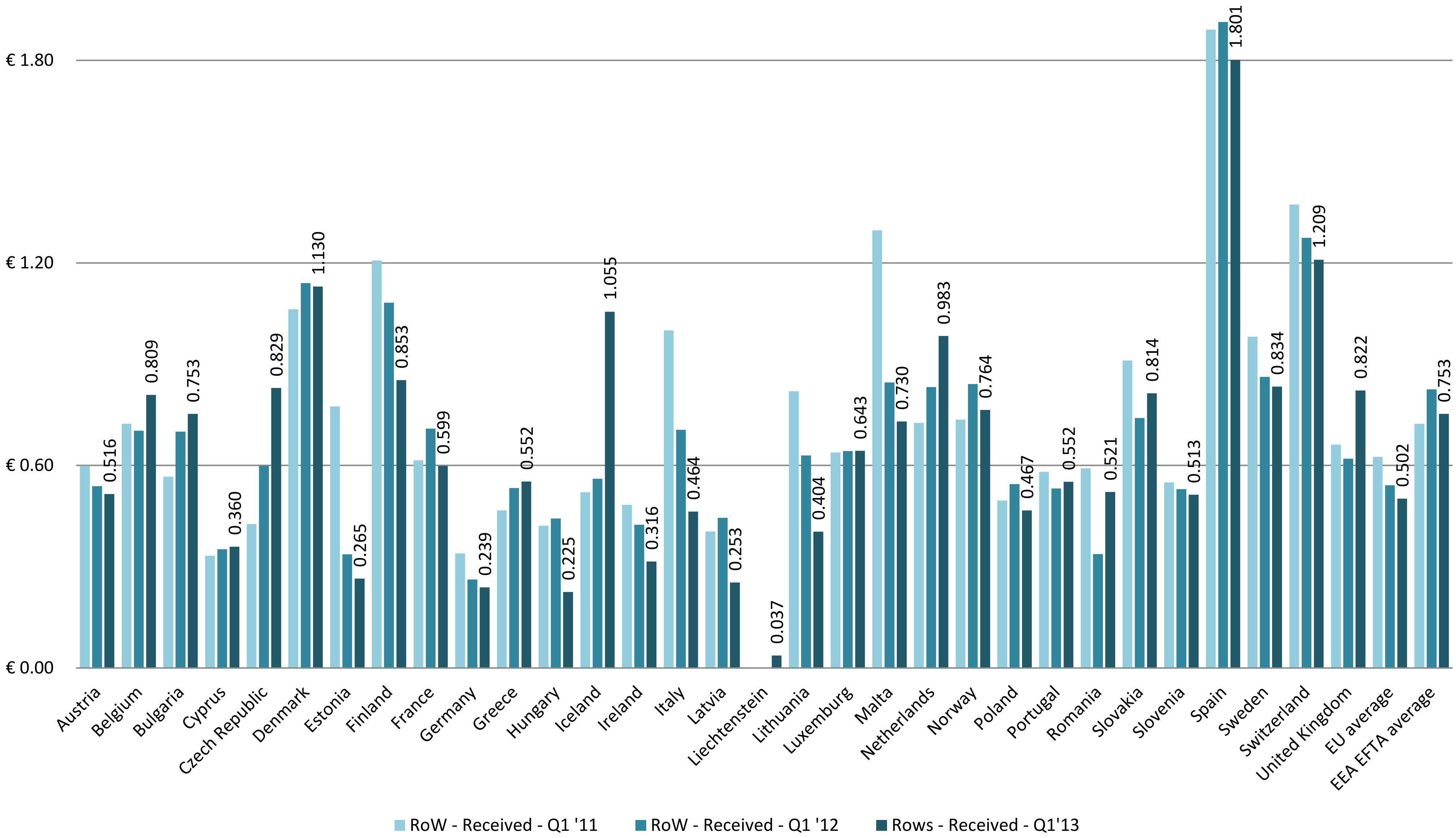


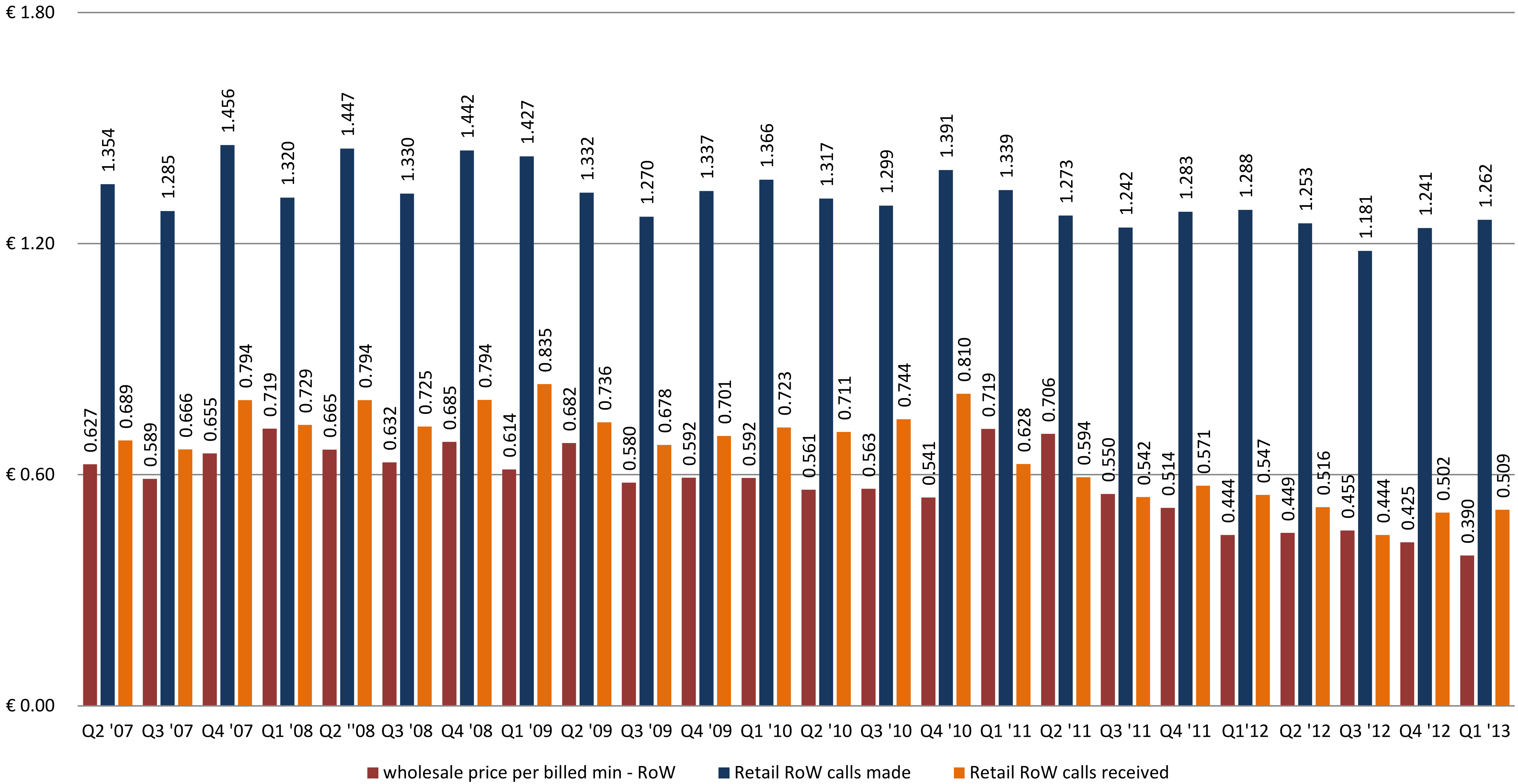
**Figure 31: Average retail price per minute roaming voice calls received by EEA customers outside EEA**



# Figure 32: Average retail price per minute roaming voice calls received by EEA customers outside EEA



# Figure 33: Average wholesale and retail prices for roaming calls made and received by EEA customers outside EEA (EU only for Q2 2009 - Q1 2010)



# SMS roaming Services

## Retail prices

**Figure 34: Average retail price for Euro-SMS and Non Euro-SMS (prepaid + postpaid)**

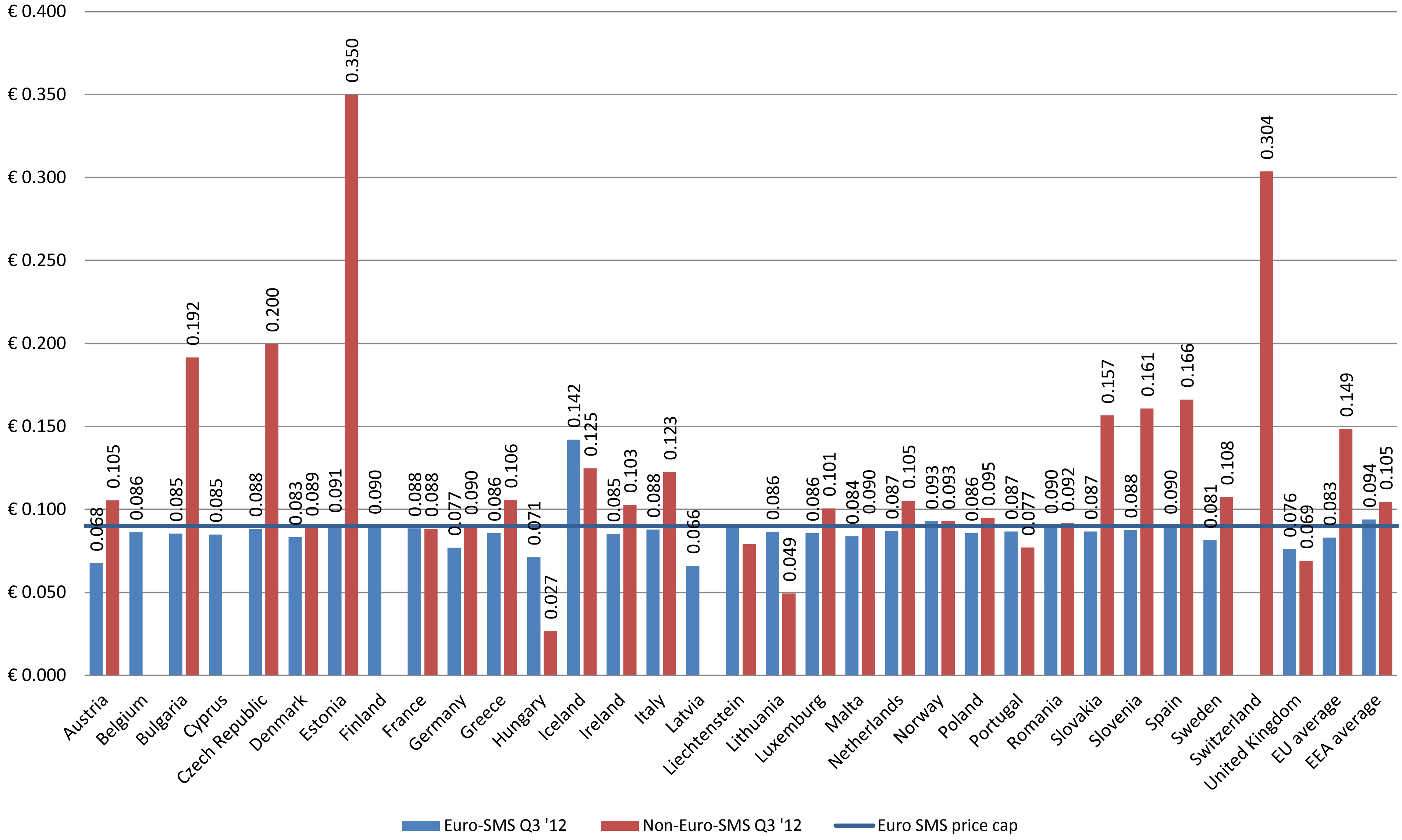


**Figure 35: Average retail price for Euro-SMS and Non Euro-SMS (prepaid + postpaid)**

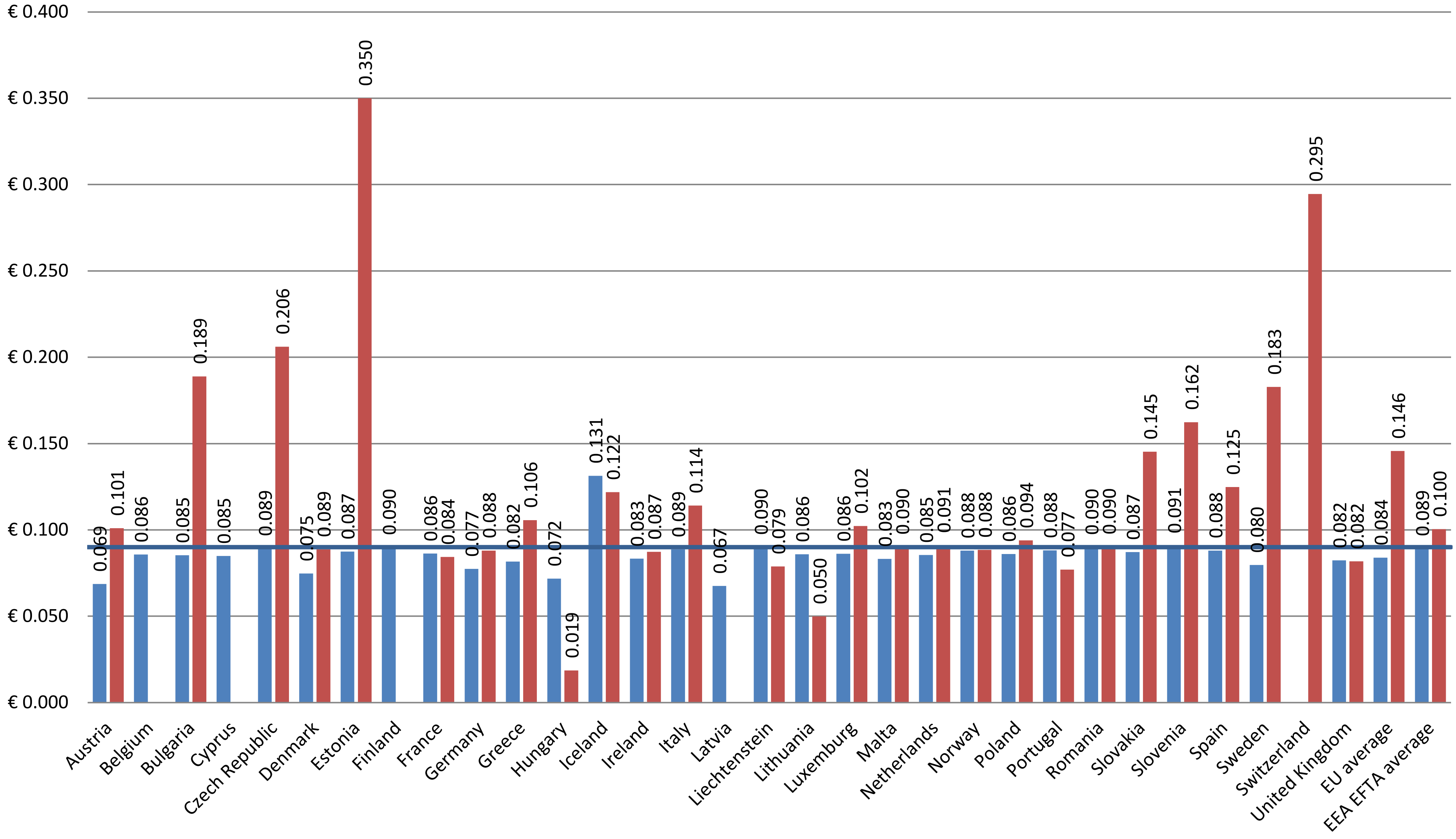


**Figure 36: Average retail price for Euro-SMS and Non Euro-SMS (prepaid + postpaid)**

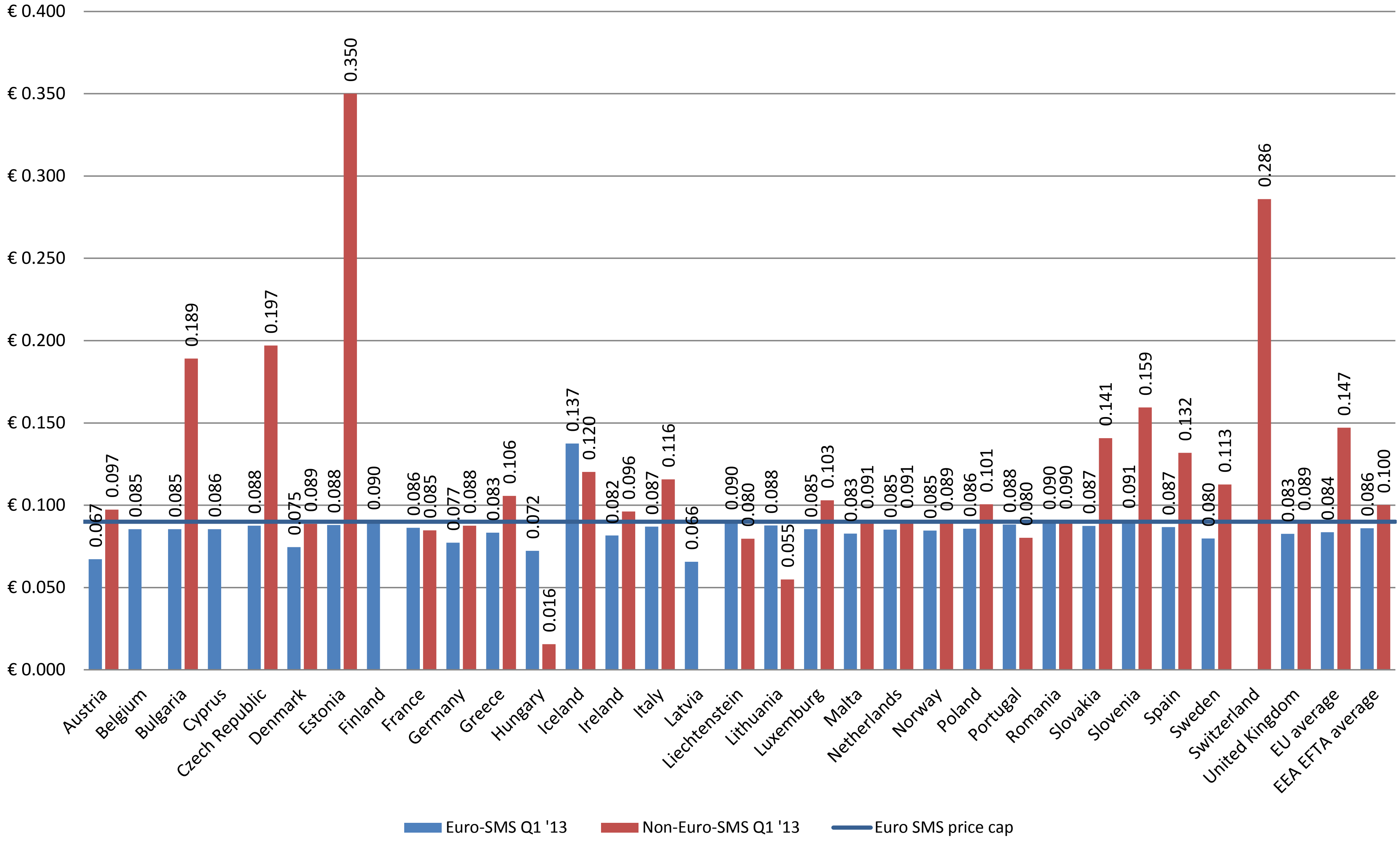
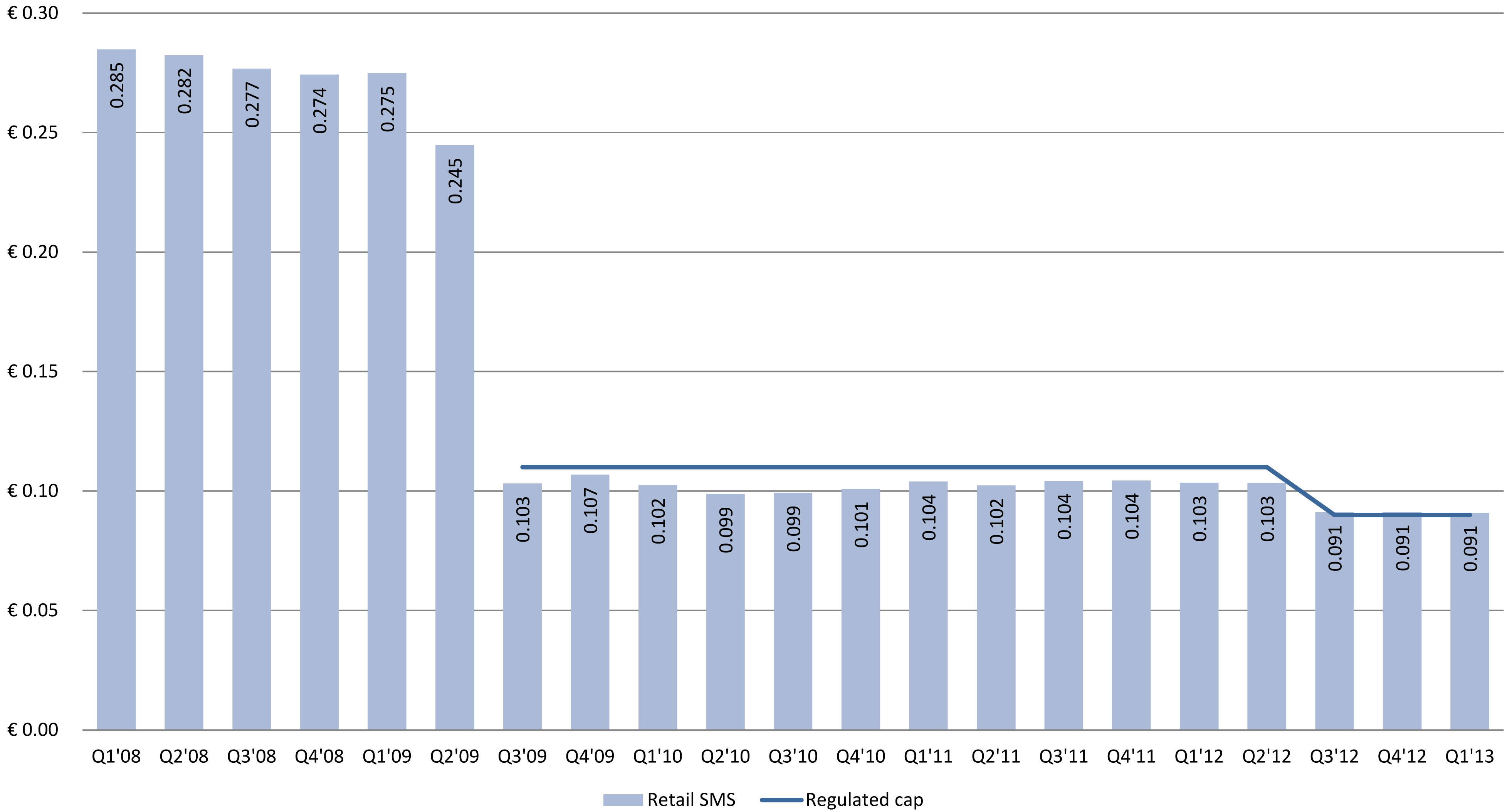


**Figure 37: Average price per retail SMS (Euro + Non Euro SMS tariffs) (EU only for Q2 2009 - Q1 2010)**



# Wholesale prices

**Figure 38: Average wholesale price per intra-EEA roaming SMS: charges to non-group companies**

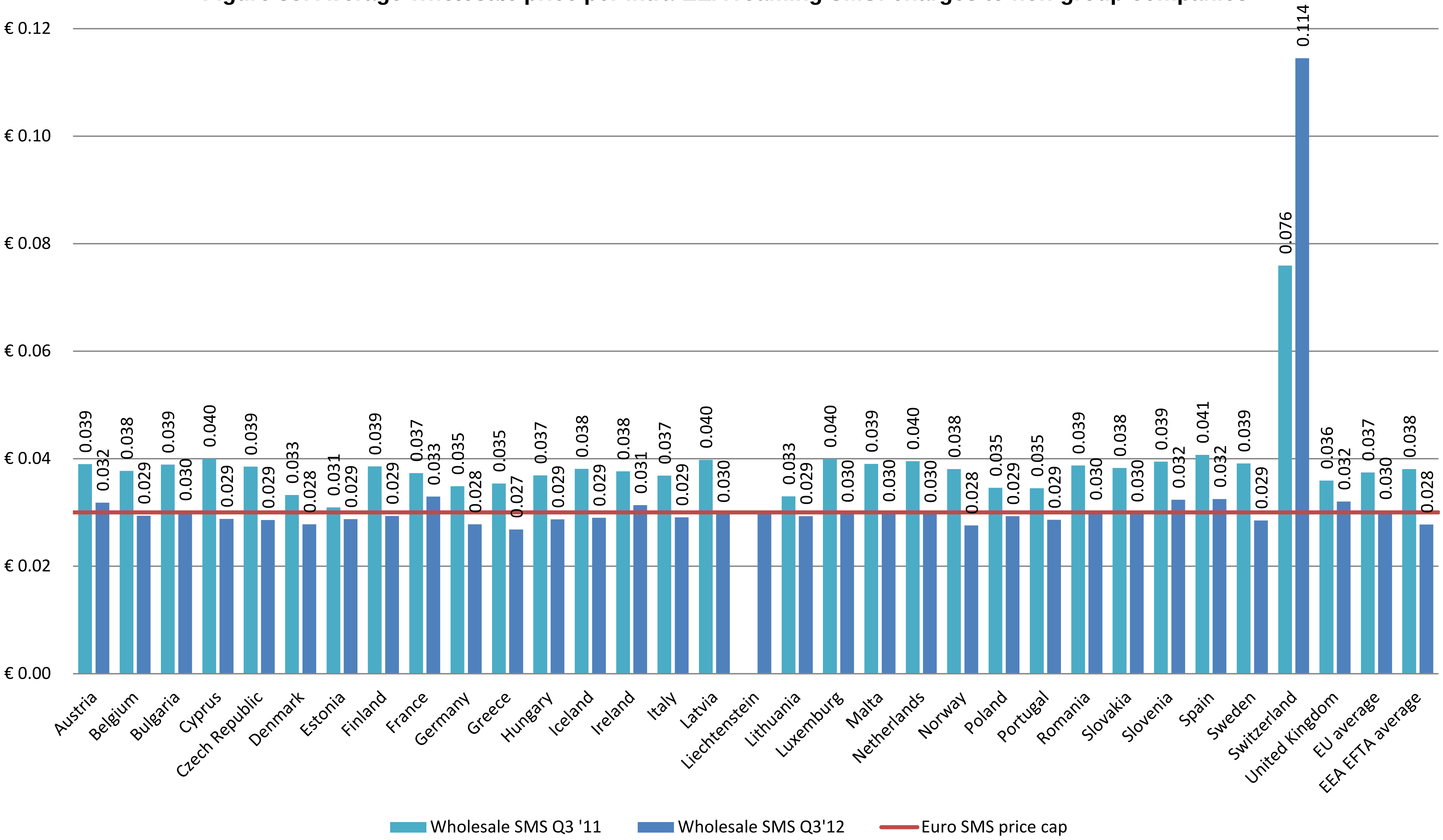


**Figure 39: Average wholesale price per intra-EEA roaming SMS: charges to non-group companies**

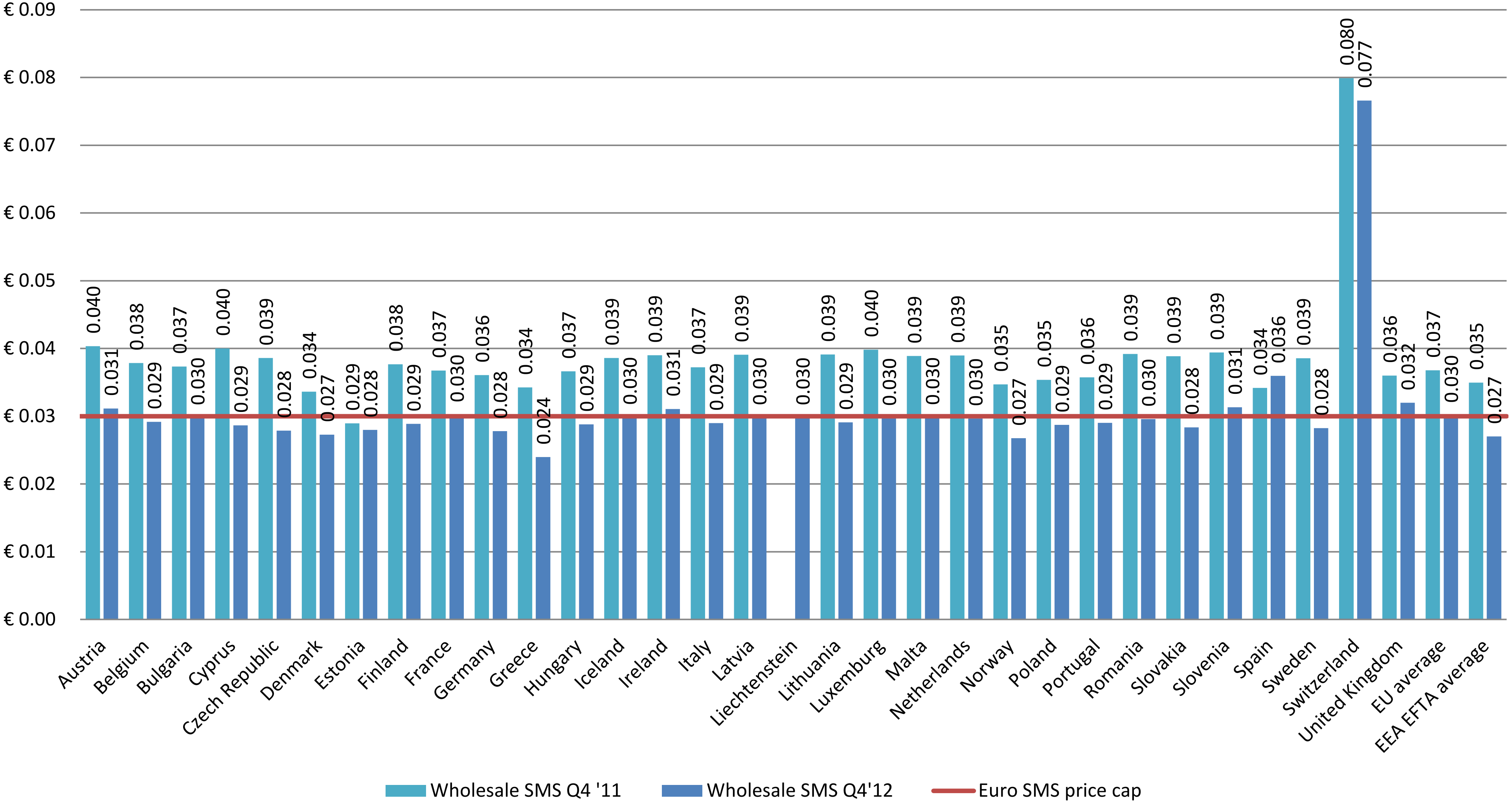
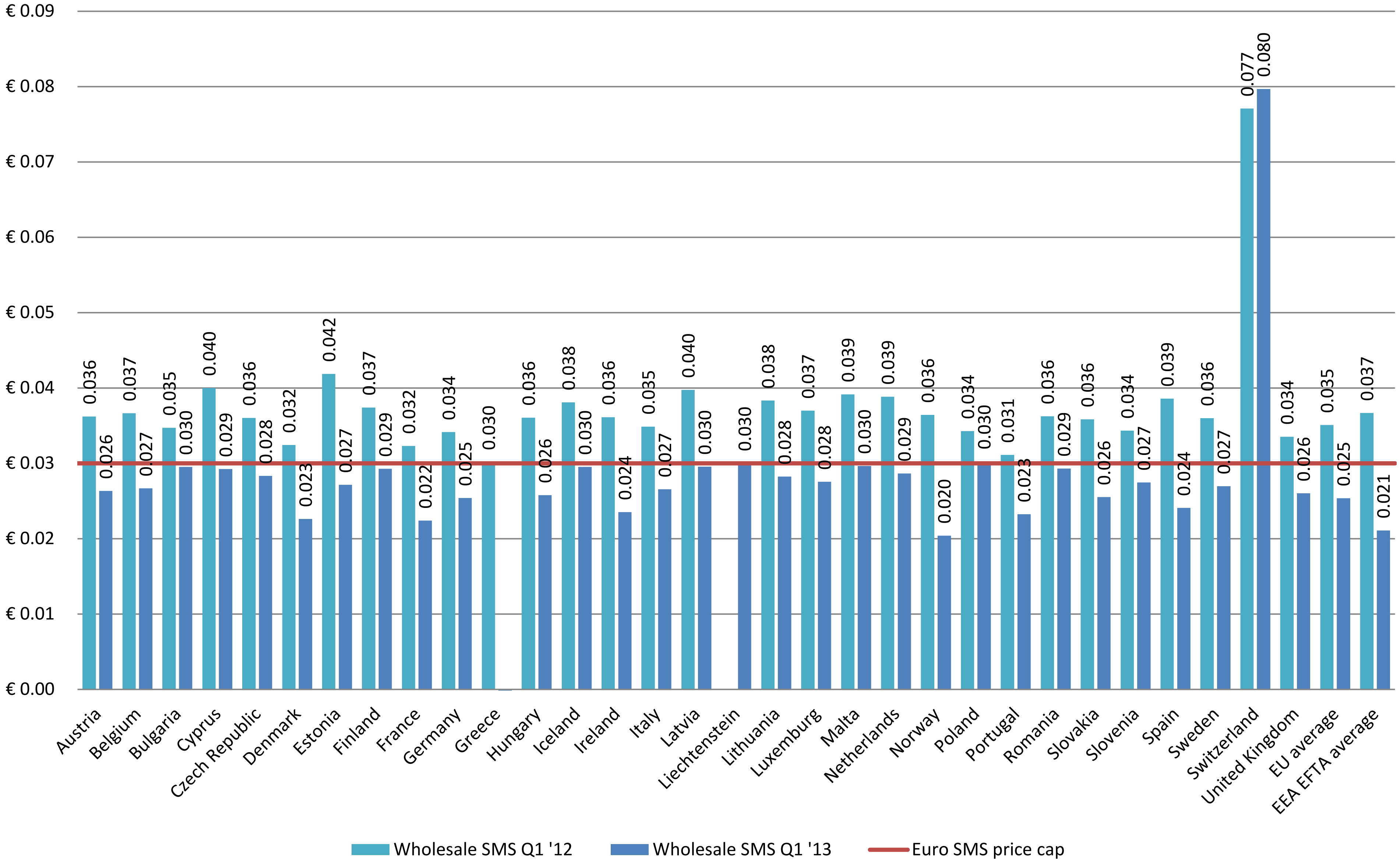
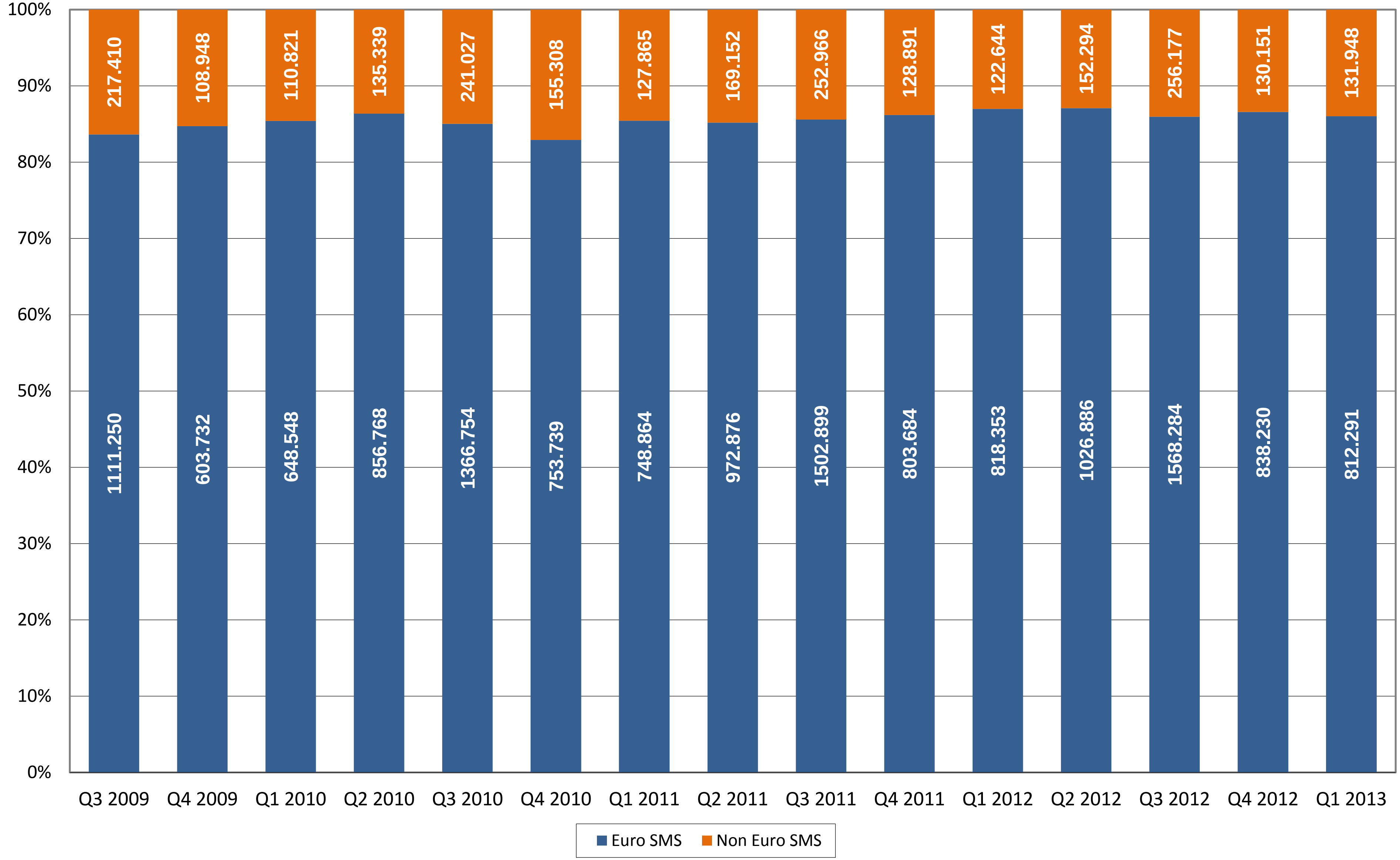


**Figure 40: Average wholesale price per intra-EEA roaming SMS: charges to non-group companies**



# Percentage of SMS messages

**Figure 41: EEA percentage of SMS messages: Euro SMS and Non Euro SMS (millions of messages)**



# Volumes of retail roaming SMS

**Figure 42: Volumes of retail intra-EEA roaming SMS sent in Q3 2012**
**Index (Q3 2008 = 100)**

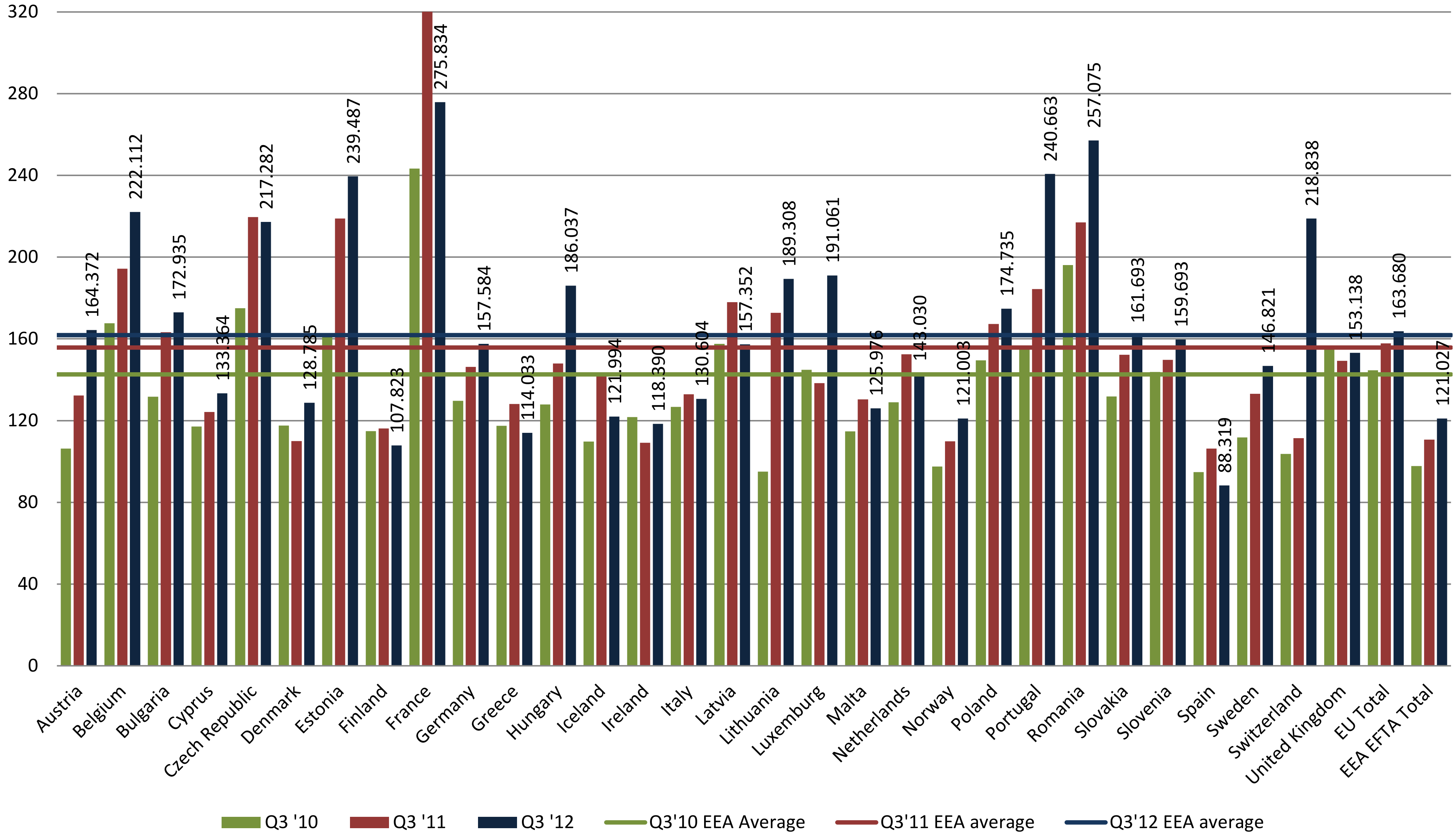
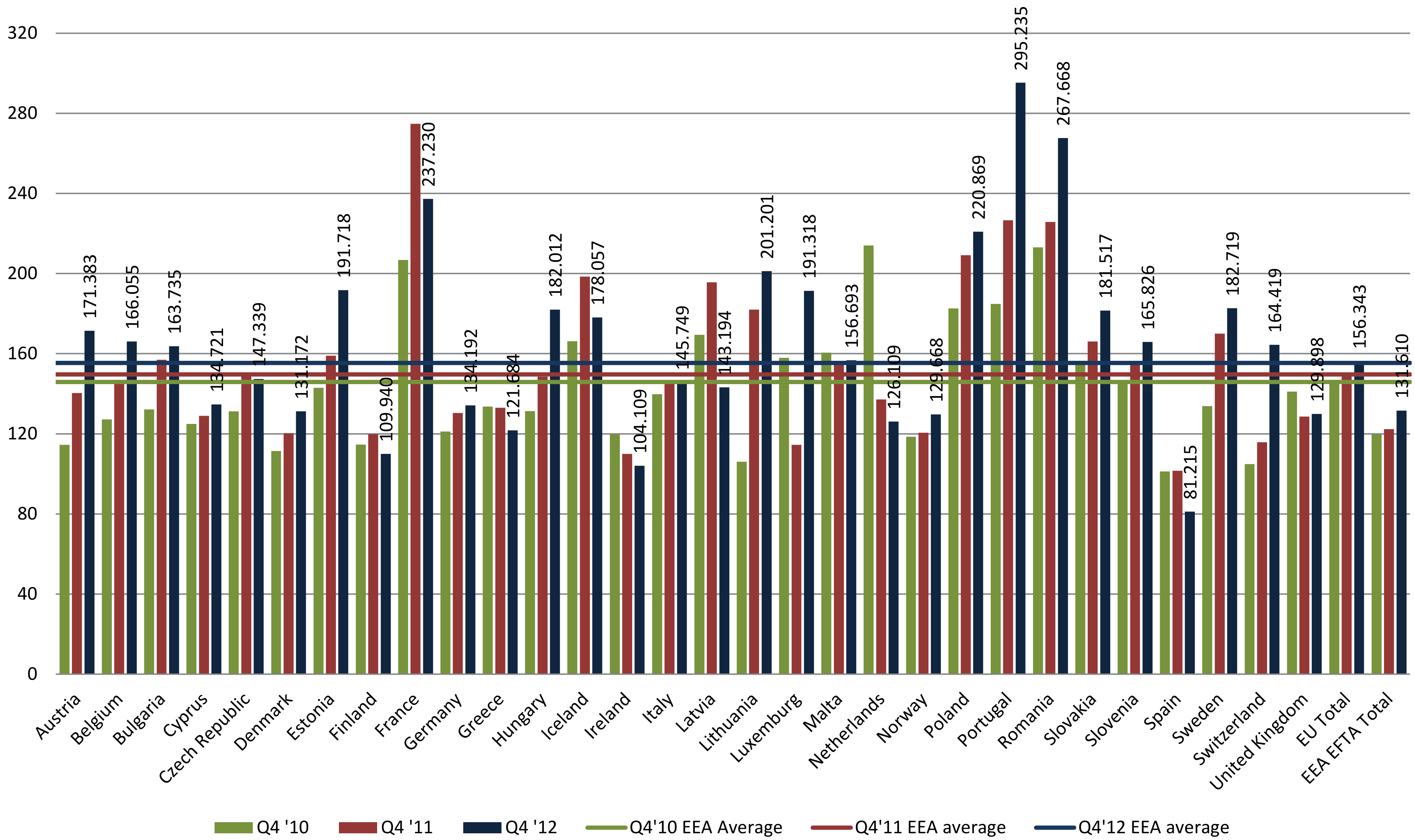
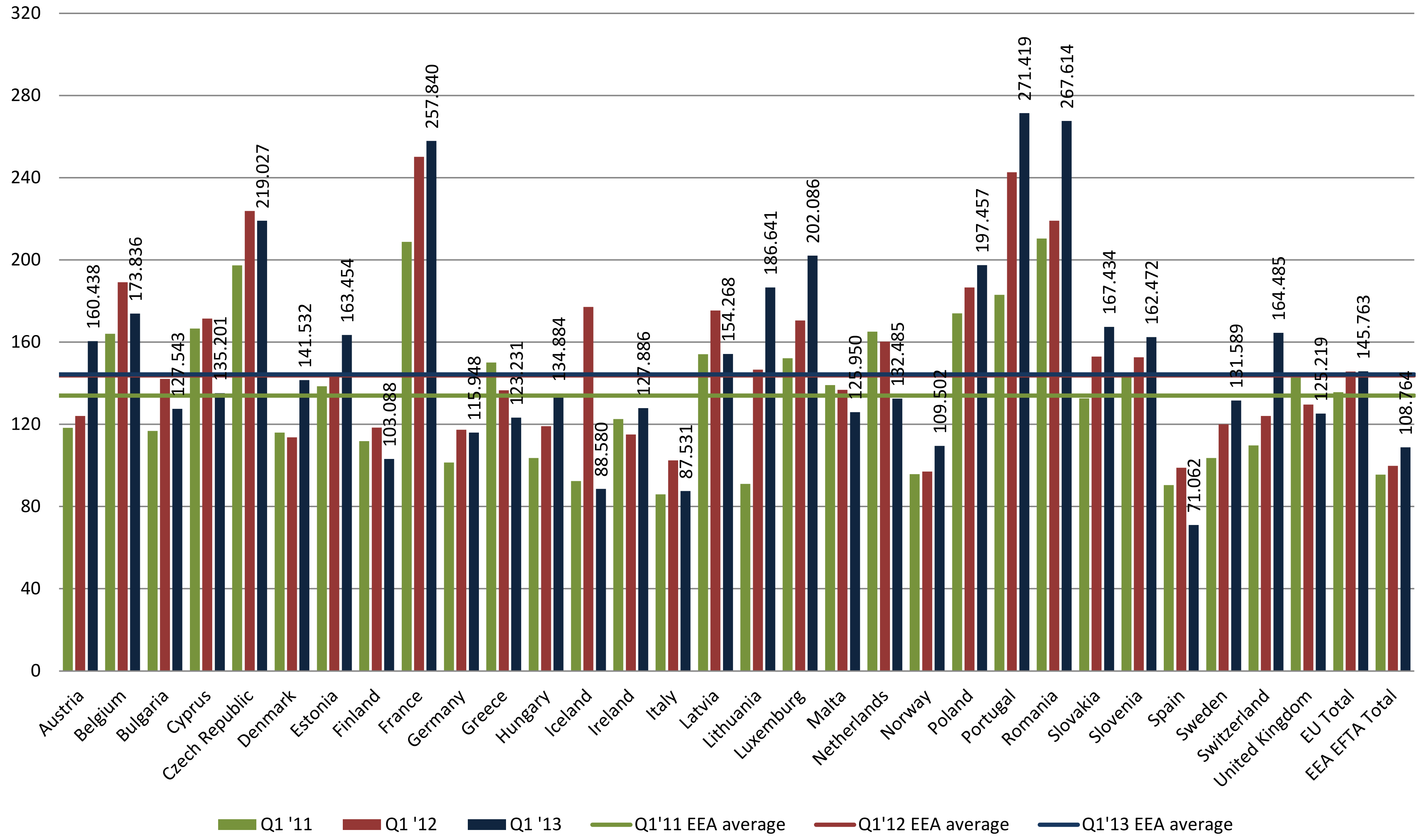


**Figure 43: Volumes of retail intra-EEA roaming SMS sent in Q4 2012 Index (Q4 2008 = 100)**




Liechtenstein: 0.095 (without base year)

**Figure 44: Volumes of retail intra-EEA roaming SMS sent in Q1 2013 Index (Q1 2008 = 100)**




Liechtenstein: 0.083 (without base year)

# DATA roaming services

## Retail prices

**Figure 45: Average retail data price per Mb (prepaid+postpaid)**

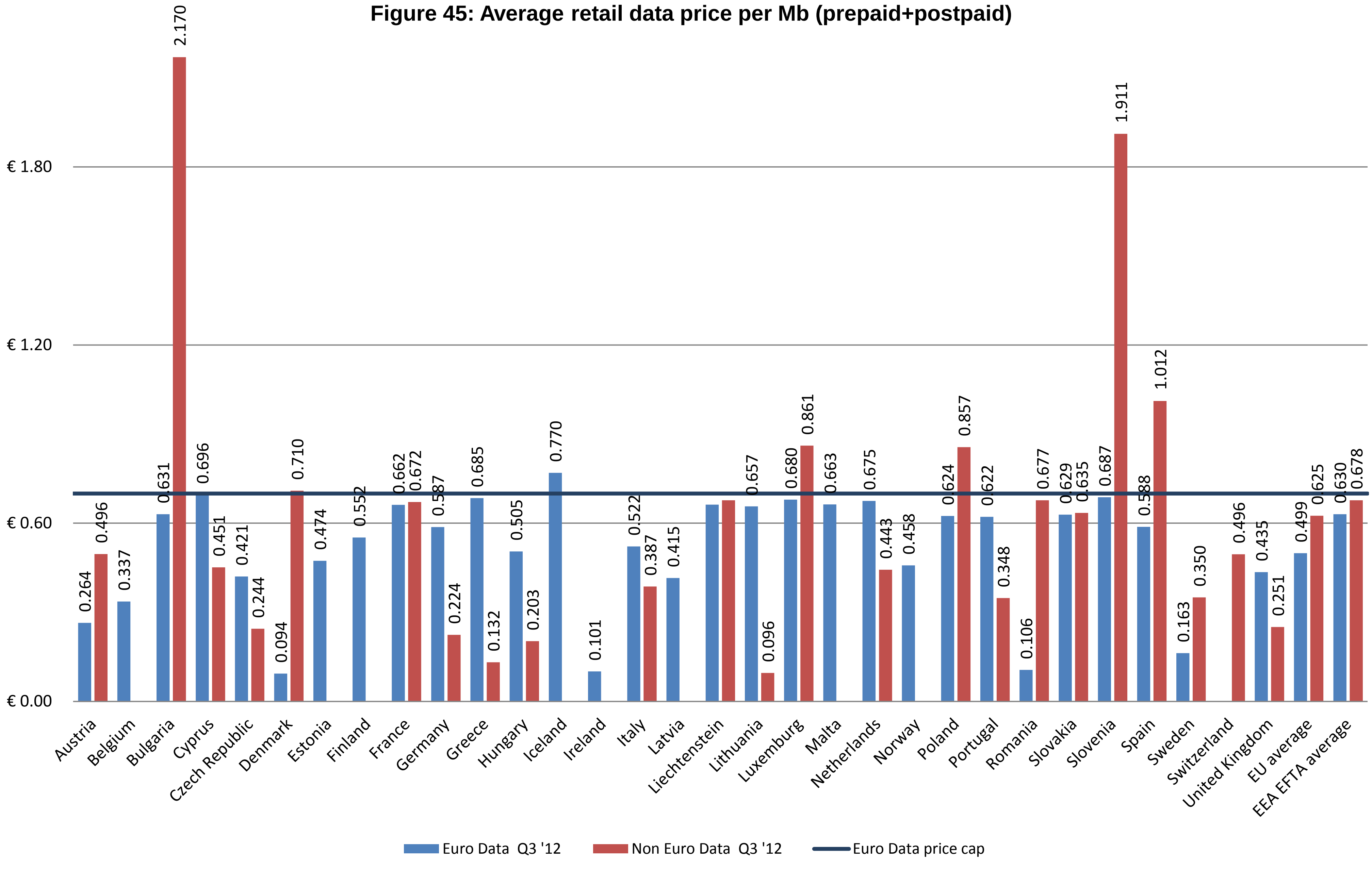


**Figure 46: Average retail data price per Mb (prepaid+postpaid)**

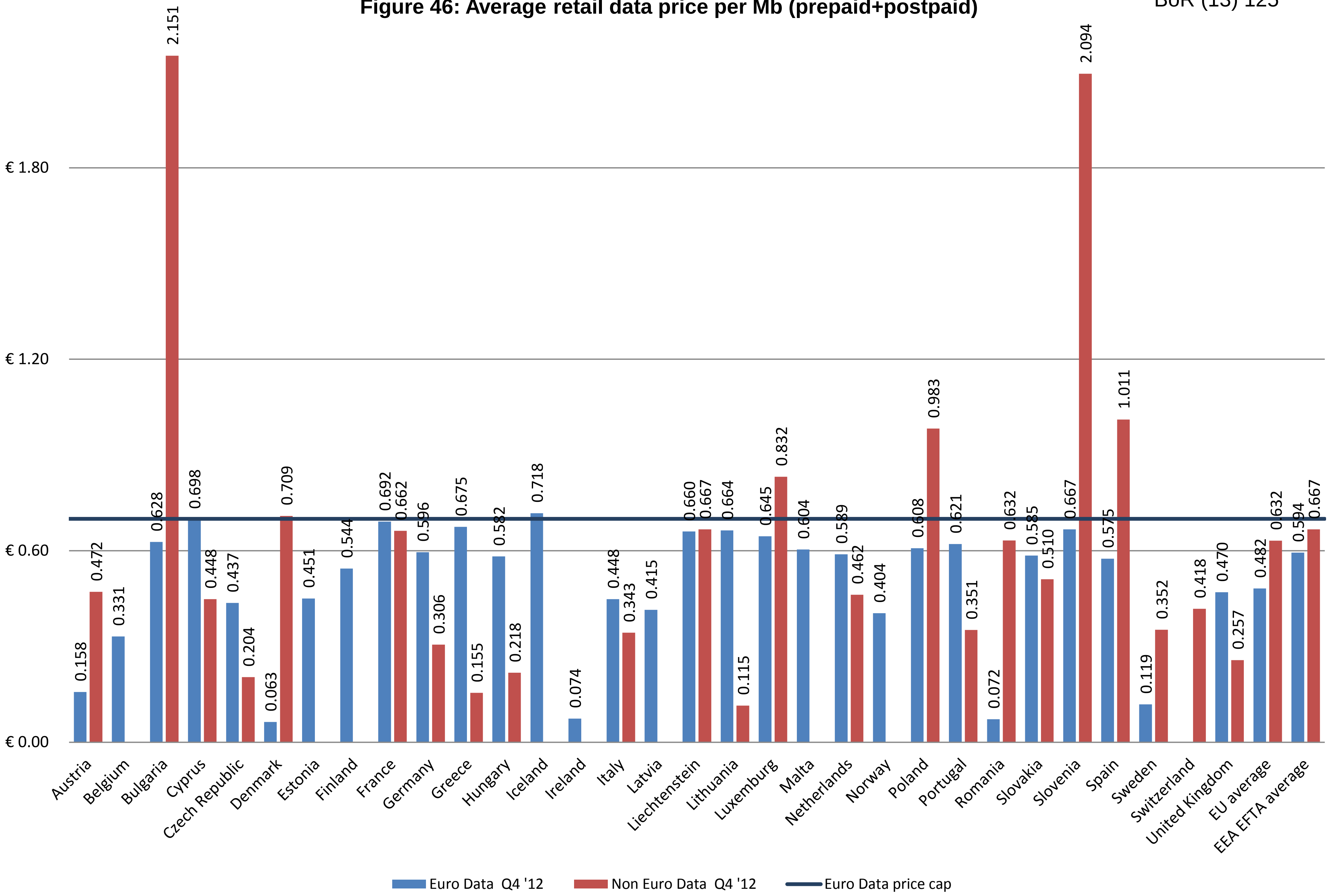
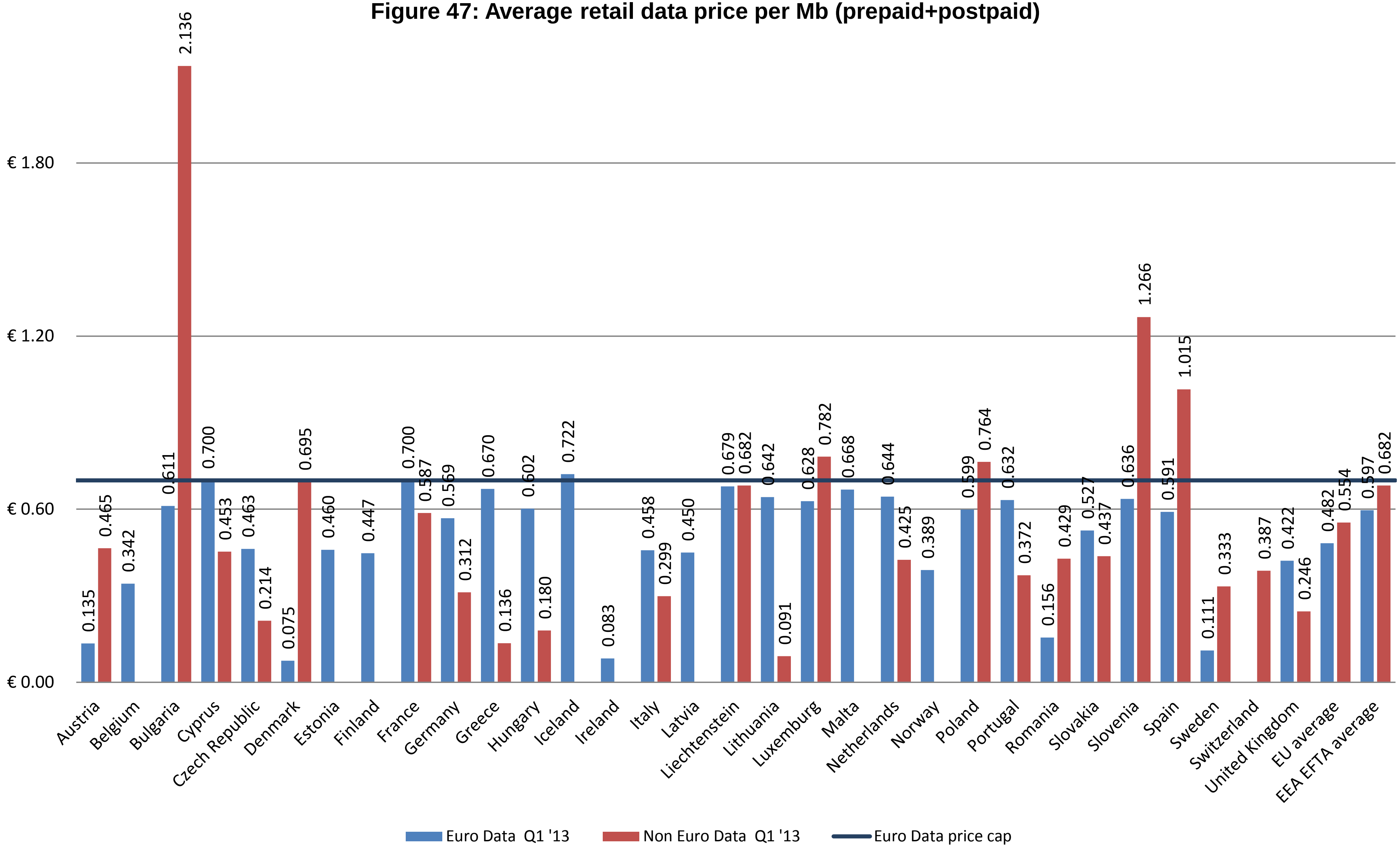
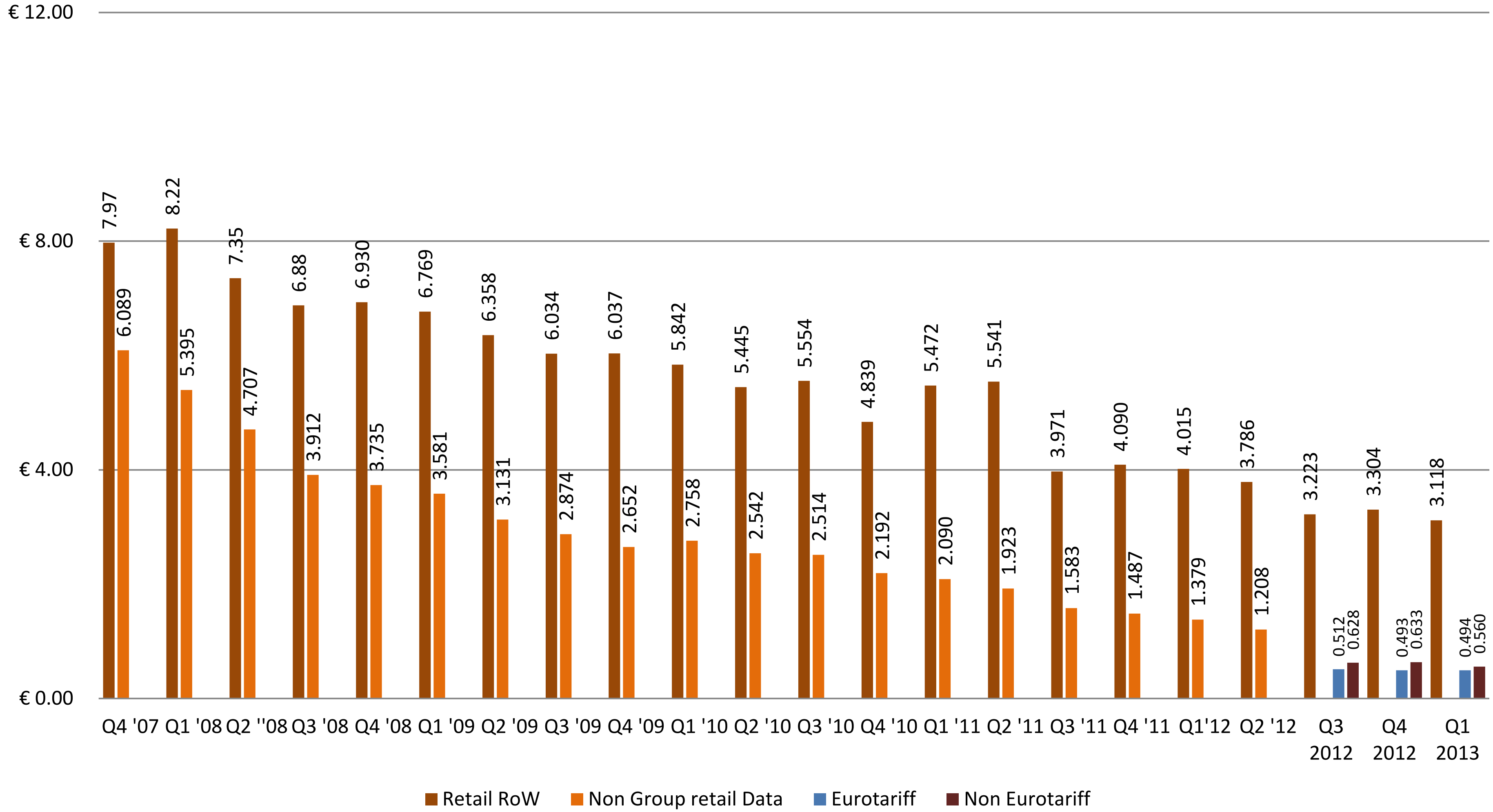


**Figure 47: Average retail data price per Mb (prepaid+postpaid)**

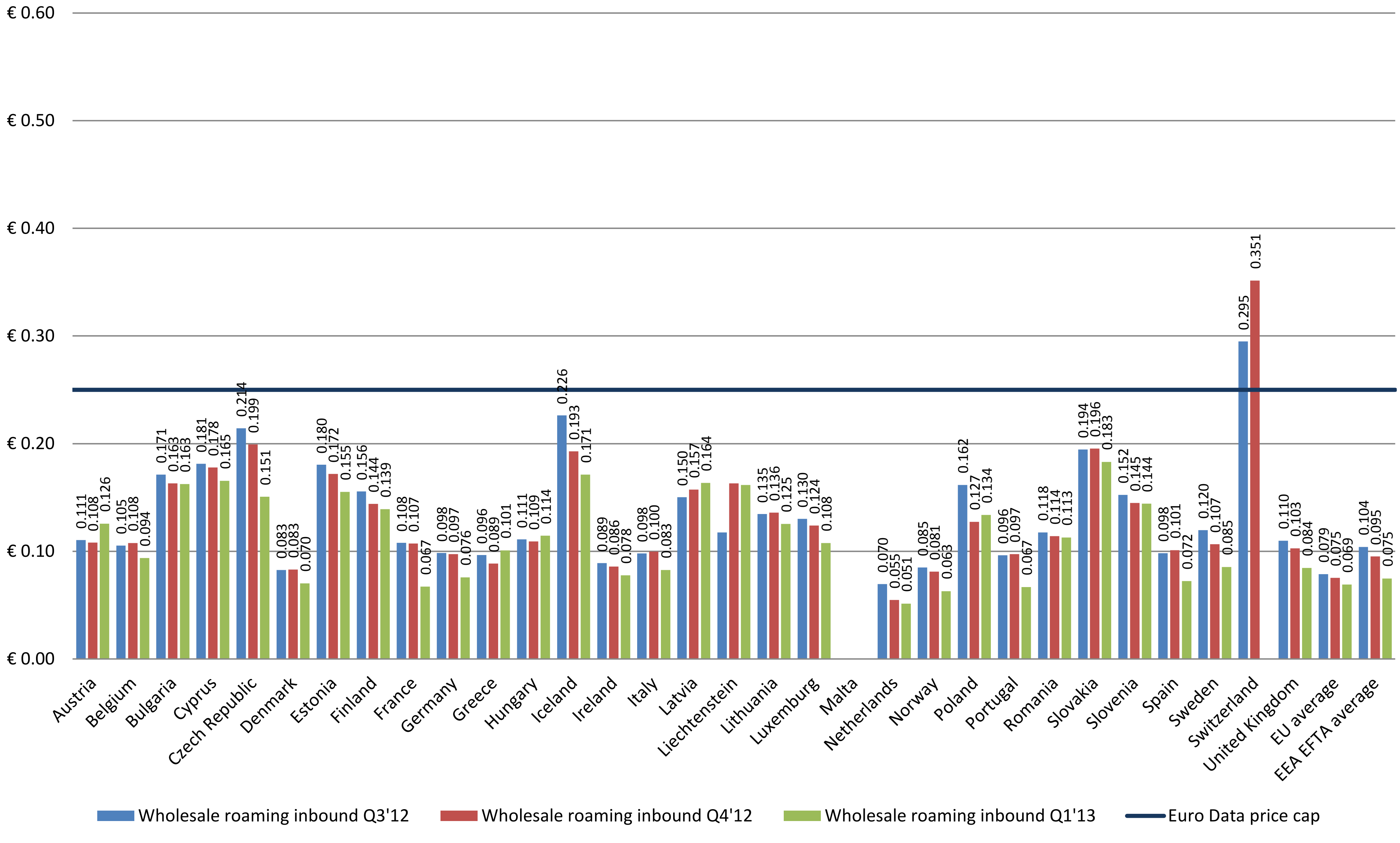


## Figure 48: EEA average price per Mb for retail EU/EEA and RoW data (Eurotariff and Non Eurotariff: prepaid + postpaid)



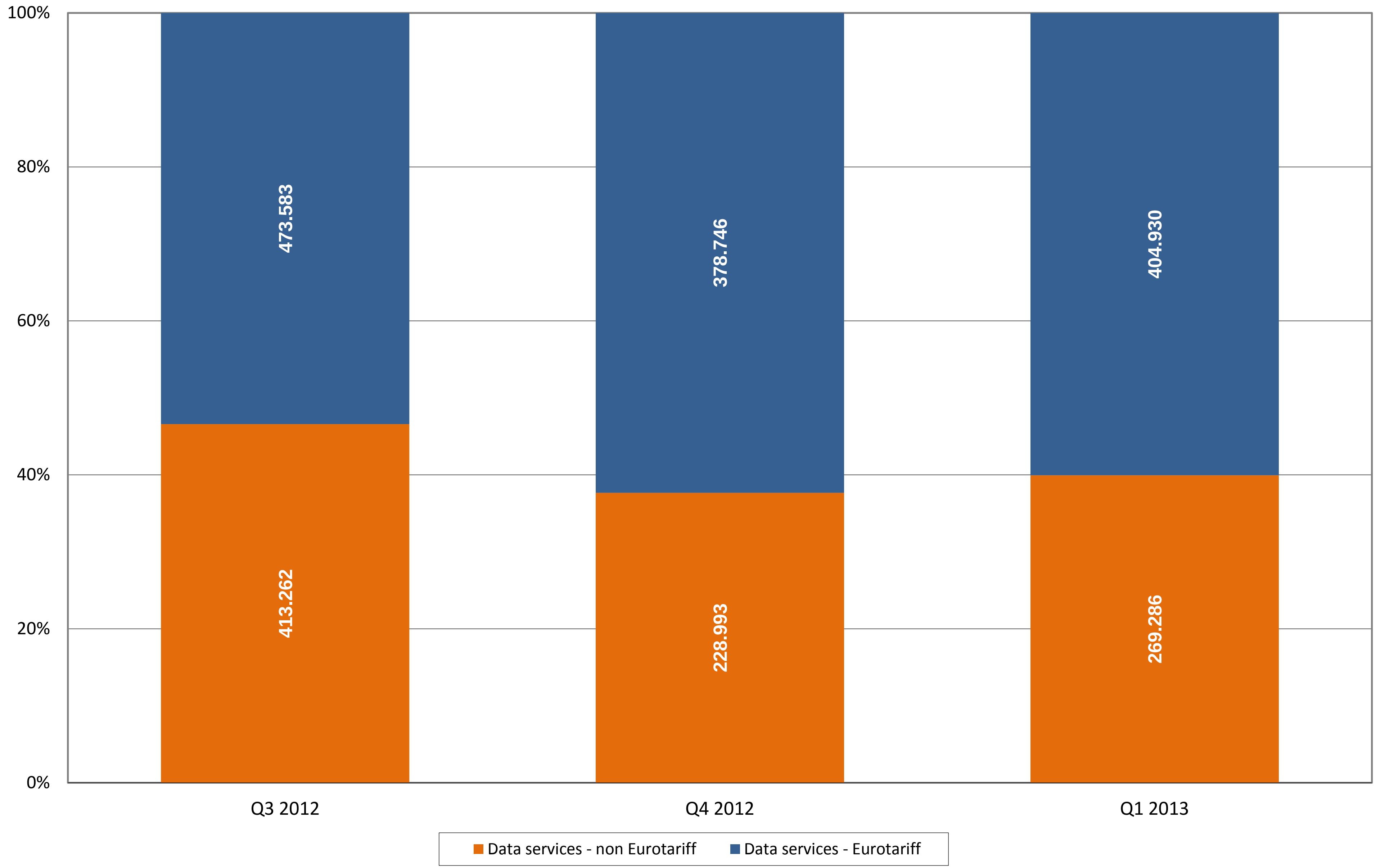
# Wholesale prices

# Figure 49: Average wholesale data price per Mb for intra-EEA: wholesale roaming inbound



# Percentage of Data service

**Figure 50: EEA percentage of Data service: Eurotariff and Non Eurotariff**



# Volumes of retail Data services

**Figure 51: Volumes of retail data in Q3 2012 Index, prepaid + postpaid (Q3 2008 = 100)**

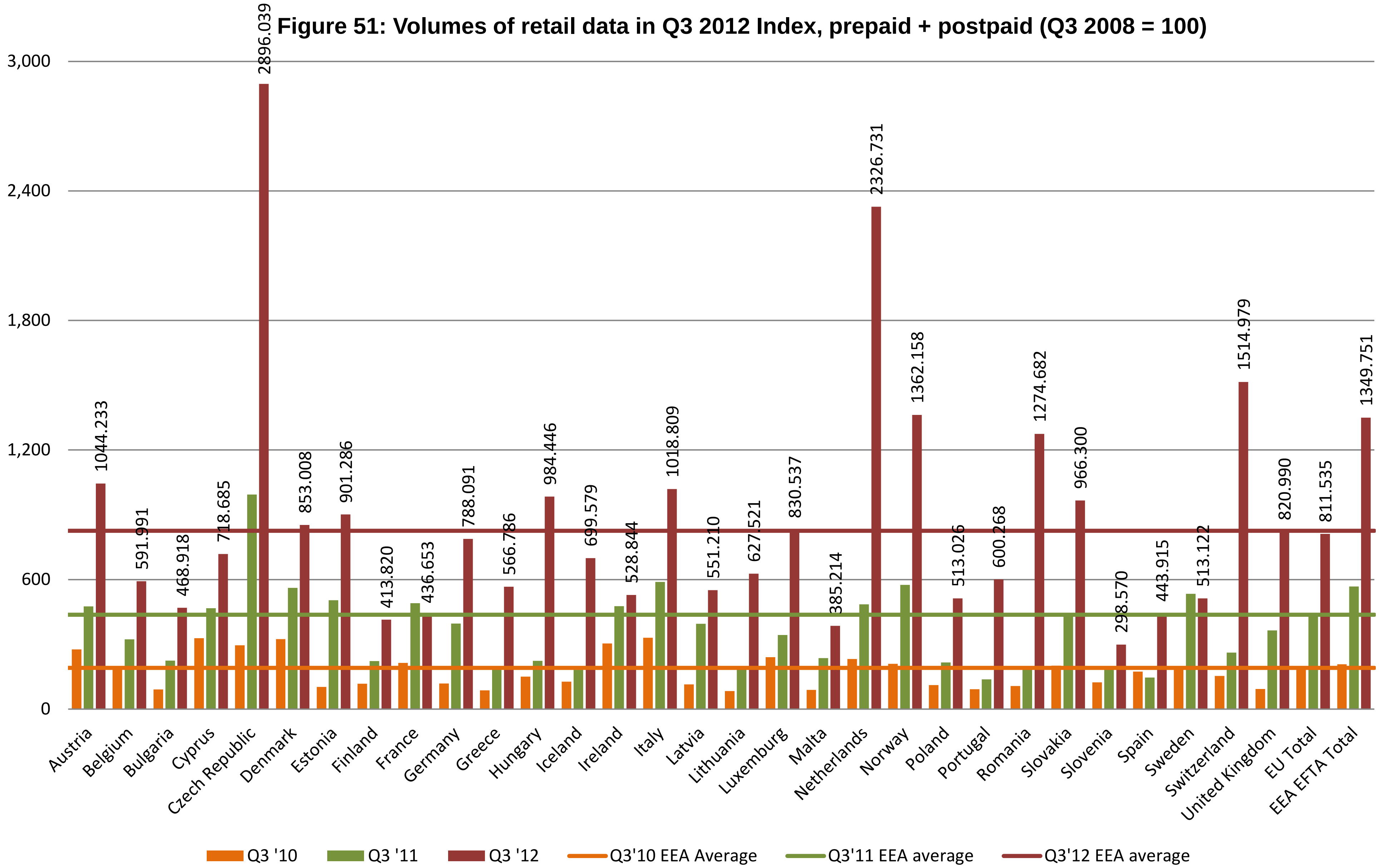
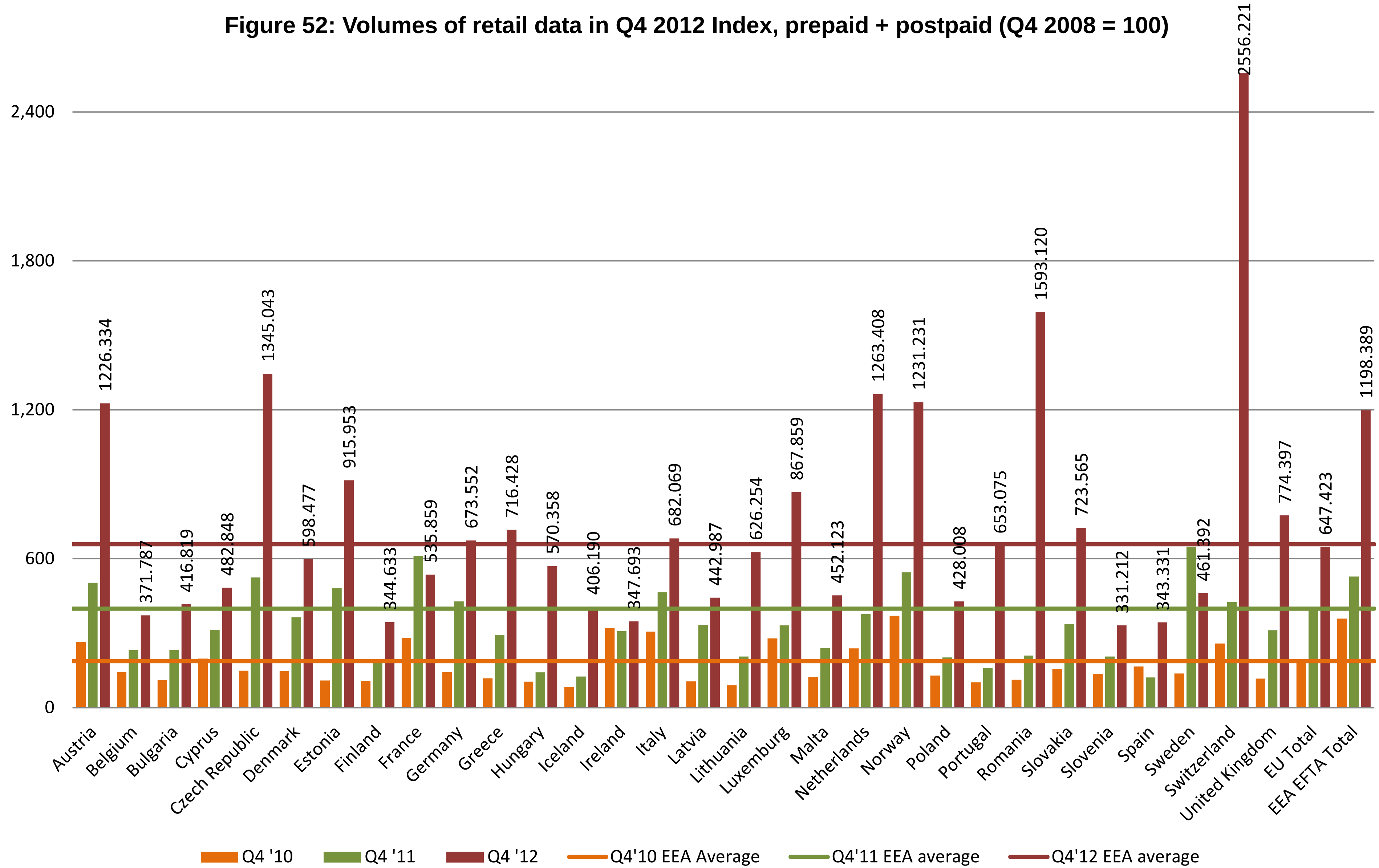
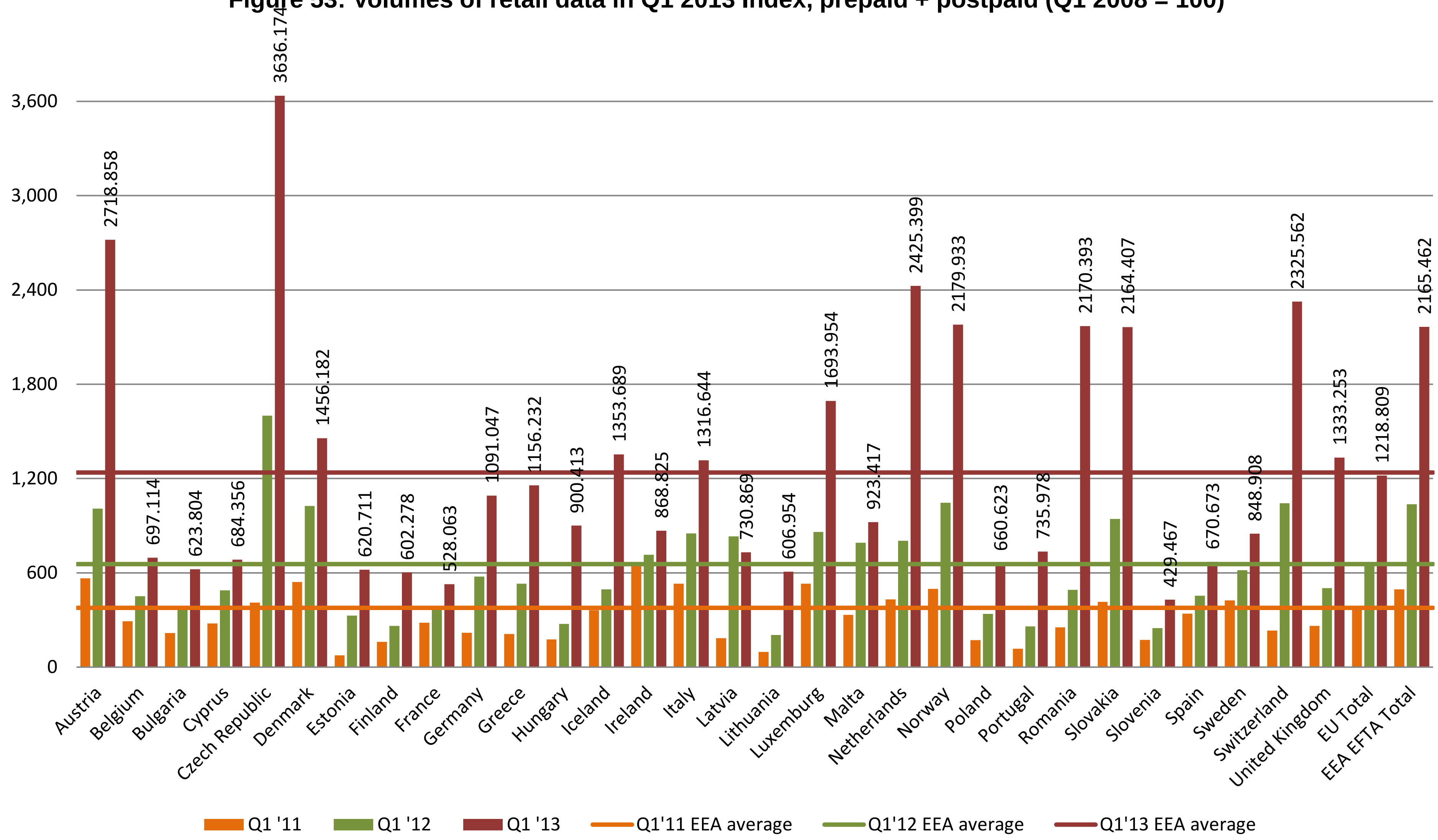


**Figure 52: Volumes of retail data in Q4 2012 Index, prepaid + postpaid (Q4 2008 = 100)**




Liechtenstein: 96.278 (without base year)

**Figure 53: Volumes of retail data in Q1 2013 Index, prepaid + postpaid (Q1 2008 = 100)**




Liechtenstein: 107.061 (without base year)

# List of respondents

Below are the operators that provided data for the period 1 July 2012 – 31 March 2013:

**Austria**
A1 Telekom Austria
T-Mobile Austria
Orange Austria
Hutchison 3G Austria
Yesss!

**Belgium**
Belgacom Mobile
KPN Group Belgium (Base)
Mobistar

**Bulgaria**
Bulgarian Telecommunication Company AD (Vivacom)
Cosmo Bulgaria Mobile EAD
Mobiltel EAD

**Cyprus**
Cytamobile-Vodafone
MTN Cyprus Ltd

**Czech Republic**
Telefónica Czech Republic
T-Mobile Czech Republic
Vodafone Czech Republic

**Denmark**
Hi3G Denmark
TDC
Telenor
TeliaDanmark

**Estonia**
AS EMT
Elisa Eesti AS
OÜ Top Connect
ProGroup Holding OÜ
TELE 2 Eesti AS

**Finland**
AlandsMobiltelefonAb
DNA Ltd
Elisa Corporation
TeliaSonera Finland Oyj

**France**
Bouygues Telecom
Orange Caraïbe
Orange France
Free Mobile

**Germany**
E-Plus Mobilfunk GmbH &Co. KG
Telefónica Germany GmbH & Co. OHG
Telekom Deutschland GmbH
Vodafone D2 GmbH

**Greece**
COSMOTE Mobile
Vodafone Panafon S.A.
Wind HellasTelecommunications S.A.

**Hungary**
Telenor MagyarországZrt
T-Mobile
Vodafone MagyarországZrt

**Iceland**
Nova
Síminn hf.
Vodafone Iceland

**Ireland**
Eircom Limited/E Mobile
Hutchison 3G Ireland Limited
Meteor Mobile Communications Limited
Telefónica Ireland Limited/(O2)
Tesco Mobile Ireland Limited
Vodafone Ireland Limited

**Italy**
Carrefour Italia Mobile
Coop Voce
Fastweb
H3G Italia
Noverca Italia
Poste Mobile
Telecom Italia
Tiscali Italia
Vodafone Omnitel
WindTelecomunicazioni

**Latvia**
Bite Latvia
LatvijasMobilaisTelefons
Tele2

**Liechtenstein**
Mobilkom (Liechtenstein) AG
Orange (Liechtenstein) AG
Telecom Liechtenstein AG

**Lithuania**
BitėLietuva
Eurocom
Omnitel
Tele2
Teledema

**Malta**
Melita Mobile Ltd
Mobisle Communications Ltd (GO Mobile)
RedtouchFone Ltd
Vodafone Malta Ltd
YOM

**Netherlands**
KPN B.V.
Lebara B.V.
Lycamobile Distribution Ltd
Tele2 Netherlands B.V.
T-Mobile Netherlands B.V.
Vodafone Libertel B.V.

**Norway**
Telenor
TeliaSonera Norge
Network Norway
Tele2
MyCall
Ventelo
OneCall

**Poland**
CenterNet S.A.
P4 Sp. z.o.o.
Polkomtel S.A.
PTC Sp. z.o.o.
PTK Centertel Sp. z.o.o.

**Portugal**
CTT – Correios de Portugal, S.A
OPTIMUS – Comunicações, S.A
TMN - TelecomunicaçõesMóveisNacionais, SA
Vodafone Portugal - ComunicaçõesPessoais, SA
ZON TV Cabo Portugal, S.A.
LycaMobile Portugal
Lda
Mundio Mobile (Portugal) Limited

**Romania**
Cosmote RMT
Orange Romania
RCS&RDS
Vodafone Romania

**Slovak Republic**
TelefónicaSlovakia
Orange Slovensko
Slovak Telekom

**Slovenia**
Debiteld.d.
IZI mobild.d.
Mobiteld.d.
Si.mobild.d.
T-2 d.o.o.
Tušmobild.o.o.

**Spain**
Euskaltel
Orange
TelefónicaMóviles de España
Vodafone
Yoigo

**Sweden**
Hi3G Access AB
Tele2 Sverige AB
Telenor Sverige AB
TeliaSonera AB

**Switzerland**
Orange Communications AG
Sunrise Communications AG
Swisscom (Schweiz) AG

**United Kingdom**
3 UK
O2 UK
Everything Everywhere
Vodafone UK
Tesco Mobile
Virgin Mobil