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RESPONSE TO COMCOM'S ANNOUNCEMENT OF MULTI-BAND AUCTIONS

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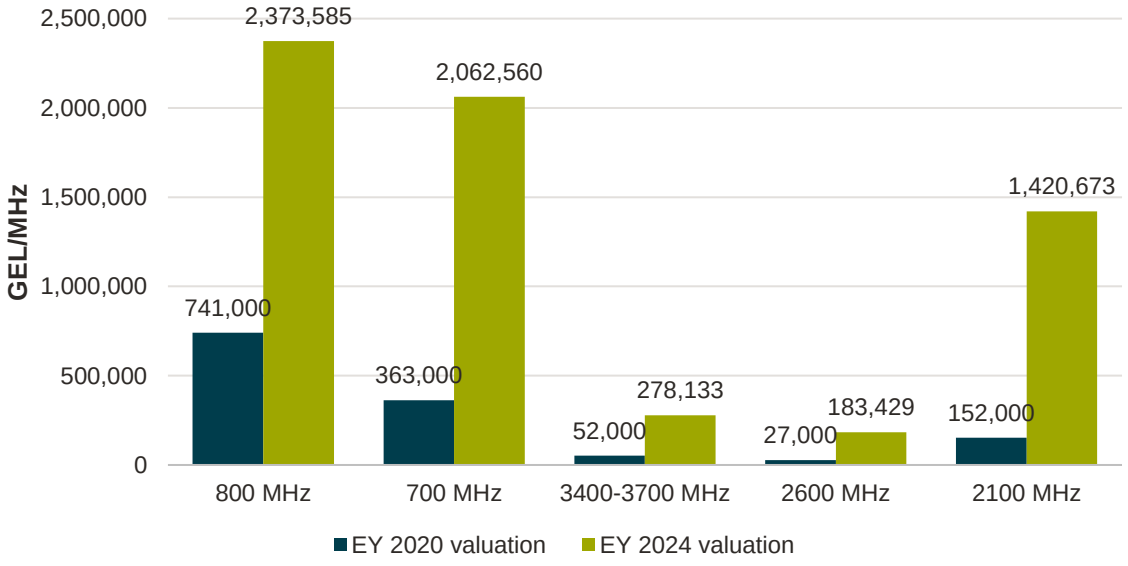
Executive summary

The Communications Commission (ComCom) is currently consulting on the upcoming auction of 800 MHz, 700 MHz, 2100 MHz, 2.6 GHz and 3.5 GHz spectrum. As part of the auction process, the ComCom also needs to set initial (reserve) prices for the spectrum. Frontier Economics has been commissioned by Silknet to review the Commission's approach to setting initial/ reserve spectrum prices and to assess their appropriateness, in the context of the Georgian regulatory framework and international best practice. This report sets out our findings.

The context to the spectrum award

This is not the first auction of spectrum for 5G services in Georgia, with ComCom having attempted to sell the same spectrum in 2023. However, most of the spectrum was left unassigned. Despite this, ComCom is now proposing to increase the reserve prices significantly compared to the 2023 award. We understand this increase is driven by a revised assessment of the value of spectrum bands and by lower discounts applied to account for licence obligations. Figure 1 below shows a 3 to 7 fold variation in the values of spectrum bands used by ComCom to set reserve prices in 2023 and 2024. In 2023, the spectrum band values were derived from a business modelling study carried out by EY ("EY business modelling") in 2020, whereas in 2024, they were based on a benchmarking study also conducted by EY ("EY benchmarking study").

Figure 1 Estimated spectrum values used as a reference in 2024 (EY 2024) and in 2023 (EY 2020)



Source: ComCom

International best practice in setting reserve prices

When assigning spectrum, the regulators' key objective is to ensure that all spectrum is put into productive use in order to reduce costs and to maximise consumer benefits. An outcome in which, following an auction, some spectrum is left unassigned, is clearly not optimal. This is because that spectrum cannot then be used to support the delivery of services – either meaning that services are delivered at higher costs than would be necessary or not delivered at all. Therefore, the regulators' objective is to assign all the spectrum available. Failing to assign the spectrum is considered a regulatory failure.

To achieve this objective, regulators typically set reserve prices conservatively, ensuring they do not exceed the expected market value. This requires forming a well-informed view of the expected market value within the local context. Factors such as the cost of coverage and quality-of-service obligations attached to the licenses, previous auction outcomes, and relevant local market data are considered as key inputs to inform spectrum valuations, often based on business modelling. In some instances, international benchmarks are used as a cross-check to validate these estimates. However, spectrum auctions are inherently context-specific, and benchmarking can be challenging to interpret when there are differences in license conditions attached to spectrum licences.

ComCom's proposed approach is not consistent with the Georgian regulatory framework and the resulting reserve prices are not supported by the evidence from the market

Under the Georgian regulatory framework, when estimating the value of spectrum, ComCom may use both the business modelling approach and international benchmarking, but a preference should be given to the business modelling approach.[1] Furthermore, when setting reserve prices, ComCom should discount the estimated spectrum values.[2]

Based on our assessment, ComCom's approach adopted in the 2024 consultation is not consistent with the Georgian regulatory framework. This is because:

1. ComCom has given preference to the benchmarking study rather than the business modelling approach (which is contrary to the regulatory framework). As the results of the benchmarking study are significantly higher than the results of the business modelling approach, ComCom's approach is likely to significantly overstate the value of spectrum on offer, given that the spectrum previously did not sell even with lower reserve prices

[1] Article 9 of ComCom resolution no. 13 provides that "*in the event that the estimated value of the 1 MHz resource for a specific section of the relevant radio frequency band is estimated using both methodologies, the business modelling methodology shall be given a priority*"

[2] Article 9 of ComCom resolution no. 13 provides that "*A discount of 5% to 20% of the estimated value of the auctioned radio frequency spectrum (Pn*C) determined by the Commission's decision on announcing the auction, which is determined taking into account the market demand and license obligations*."

(due to stringent coverage and QoS obligations based on the business model approach) than those now proposed.

2. ComCom has disregarded the fact that it failed to sell spectrum in 2023 at lower reserve prices due to stringent coverage and QoS obligations. It has certainly not explained what has changed in the market between 2023 and 2024, which would justify the massive increases in the reference spectrum bands values depicted in Figure 1. Our analysis suggests that the changes in the market between 2023 and 2024 are minimal and so would not justify the proposed change
3. In deriving the reserve prices for the spectrum lots, ComCom has not applied appropriate discounts to the spectrum values derived from the benchmarking study. While the regulatory framework provides for a minimum discount of 5%, we understand that there is no discount applied to 800 MHz and 2100 MHz spectrum lots. We also note that the only "licence obligation" taken into account to apply a discount is the "MVNO access obligation" and that no discount is applied to reflect the cost of coverage and QoS obligations.

The benchmarking study used by ComCom to set its reserve price is flawed and cannot provide a reliable estimate of the market value for the spectrum bands considered

ComCom's proposed reserve prices in 2024 are set by on the benchmarking studies. We have identified multiple issues with this study:

1. **The normalisation methodology used in the study departs significantly from international best practice**. In particular, the study fails to adjust for differences in population size, while using multiple benchmarks with population size 2-3 times larger than Georgia's population. This is likely to systematically bias the results upwards.

2. **There are clear anomalies in the values used in the study**, which are likely to be driven by mathematical errors. The examples of these anomalies are provided in Section 5.2.

3. **The EY benchmarking study does not give any consideration as to whether the prices in individual auctions are likely to reflect market value in Georgia,** as a consequence, the samples used in the analysis likely include a number of auctions which do not reflect market values in the national market and/or in Georgia (for example, it includes a number of benchmarks considered unreliable by other regulators). It is important that any benchmarking study reviews all benchmarks systematically and excludes unreliable ones.

Due to the issues identified above, the benchmarking study used by ComCom is fundamentally flawed and cannot be relied upon to set spectrum reserve prices in Georgia.

There is no precedent for increasing reserve prices after the spectrum has failed to sell

We are not aware of any regulators who have increased reserve prices after the spectrum was initially left unsold and then tried, shortly after, to sell the spectrum at a higher price. This is unsurprising, given the rationale behind setting reserve prices and the consequences of leaving spectrum unassigned..

Our recommendations

1. ComCom should amend its approach to ensure that it is consistent with the regulatory framework in Georgia. In particular, it should rely primarily on the business modelling approach (as stipulated by the framework). The valuation model constructed in 2020 should be updated taking into account stringent QoS and coverage obligations defined for spectrum licences not envisaged in the model and the latest developments in the market. It should also take into account the fact that the results produced in 2023 overstated the spectrum value in 2023 (as ComCom failed to sell the spectrum in 2023), which implies that some assumptions were too optimistic and additional coverage and QoS obligations not consistent with the market conditions in Georgia.

2. International benchmarks should only be used by ComCom as a cross-check, but not the primary source of evidence on the spectrum values. If international benchmarks are used as a cross-check, the normalisation approach needs to be adjusted in line with international best practice set out in this report.

If carried out appropriately, international benchmarking and business modelling should produce broadly similar results. If there are any significant discrepancies between the two sets of values, the regulator needs to explain what drives these differences. Any errors identified in the process need to be corrected.

3. When setting reserve prices, ComCom should take into account coverage and QoS obligations attached to licences and apply discounts to the estimated spectrum values in order to be consistent with the Georgian regulatory framework and with international best practice. Setting reserve prices too high and/or defining stringent coverage and QoS obligations is likely to result in spectrum being left unsold and left fallow, which is considered a major regulatory failure.

Signed: 

Name: James Bellis

Designation: Director

2 Introduction

In this section we present the context to our report, summarising our understanding of ComCom's proposal and critically, how the proposed reserve prices relate to the reserve prices from the previous spectrum auction in Georgia. We then summarise how the remainder of our report is structured.

2.1 The ComCom tried to auction spectrum for 5G services in 2023, but only sold a fraction of it

To enable the transition to 5G services and the growth of high speed mobile internet connectivity more generally, regulatory authorities and governments around the world are assigning significant amounts of spectrum to mobile operators. Such assignments are typically, at least in Europe, made through auctions, with regulators using auctions to identify the parties who place the highest value on the spectrum and hence could be expected to put the spectrum to its most productive use. A common element of such auctions is a so-called "reserve price". This refers to a price, set in advance of the auction, below which the spectrum usage rights will not be sold.

Reflecting the increasing demand for mobile internet services in Georgia and the recognised benefits (including to the wider economy) of promoting 5G services, the ComCom launched, in 2023, such an auction for "5G spectrum".[3] During this auction, the ComCom set reserve prices using a business modelling approach. That is, it developed a business model to estimate the values that mobile operators might place on the spectrum. To derive the reserve prices for each lot of spectrum included in the auction, it then applied discounts to these estimated values, with these discounts varying according to the nature of each specific spectrum lot and whether or not that lot came with an obligation on the winning bidder to provide network access to MVNOs. The resulting reserve prices, in Georgian Lari, are presented in the following table.

[3] Whilst, for simplicity, we refer in this report to "5G spectrum", it is important to note that spectrum is typically auctioned in a technology neutral manner. As such, the reference to "5G spectrum" is, more correctly, referring to spectrum bands in which it is possible to deploy 5G mobile networks.

Table 1 Reserve prices for primary frequency lots in the 2023 auction, Georgian Lari

Band	MHz	Reserve price, with QoS, coverage and MVNO obligations	Reserve price, without MVNO obligations
Combined lot 700 MHz + 3400-3700MHz (1)	10 MHz (700) + 50 MHz (3400-3700MHz)	4,984,000	6,230,000
Combined lot 700 MHz + 3400-3700MHz (2)	10 MHz (700) + 50 MHz (3400-3700MHz)	2,530,900	NA
Combined lot 700 MHz + 3400-3700MHz (3)	10 MHz (700) + 50 MHz (3400-3700MHz)	2,593,800	NA
Combined lot 700 MHz + 3400-3700MHz (4)	10 MHz (700) + 50 MHz (3400-3700MHz)	2,656,700	NA

Source: ComCom

Note: We understand that the difference in value between the lot 1 and the others relate to the difference in QoS obligations and to a lesser extent to coverage obligations

Table 22 Reserve prices for additional frequency lots in the 2023 auction, Georgian Lari

Band	MHz	Reserve price, with MVNO obligations	Reserve price, without MVNO obligations
700MHz	10MHz (2 x 5)	2,904,000	NA
800MHz	10MHz (2 x 5)	NA	7,410,000
1800MHz (FDD)	10MHz (2 x 5)	1,320,000	NA
2600MHz (FDD)	20MHz (2 x 10)	432,000	NA
2600MHz (TDD)	10MHz	216,000	NA
2600MHz (TDD)	5MHz	108,000	NA
3400-3700MHz	50MHz	2,080,000	NA

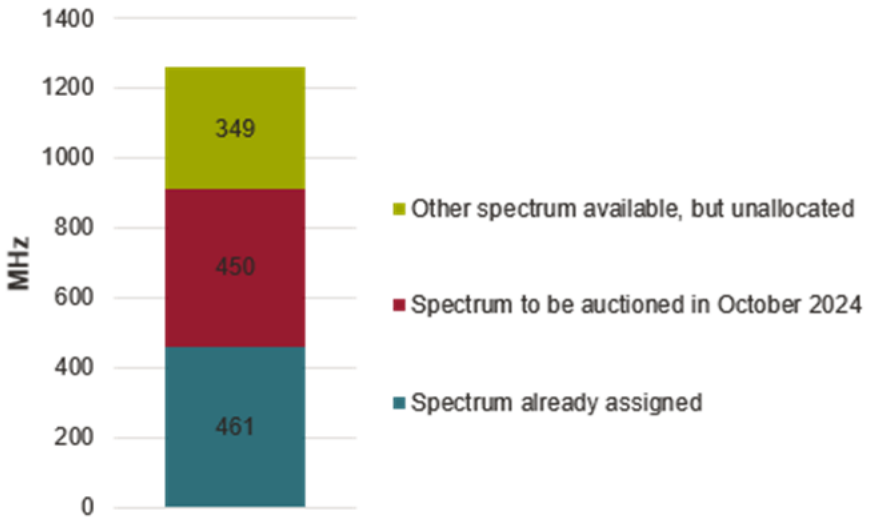
Source: ComCom
Note: these lots could not be acquired without primary frequence lots

As we set out later in this report, spectrum auctions which do not result in all the available spectrum being sold can be considered to have "failed". This is because the auction will have not resulted in all spectrum being put into productive use. Avoiding such an outcome is, therefore, a primary concern of many authorities. In this regard, we note that the ComCom's auction only resulted in a fraction of the spectrum being assigned: only one MNO (Cellfie) participated and it acquired three lots – one combined lot, the 1800MHz lot and one 2600MHz lot. We understand that the other two operators – Silknet and MagtiCom – did not participate, due to stringent licence obligations (QoS, coverage and access) and uncertain regulatory environment. In other words, they judged the reserve prices to be above their willingness to pay for the spectrum (i.e., above the value they placed on the spectrum) given the stringent obligations attached..

2.2 The Commission has now launched a second attempt to assign this spectrum

The failure to assign the majority of spectrum from the 2023 auction could have a significant impact on the development of the mobile market relative to those elsewhere, to the ultimate detriment of consumers. This is because spectrum currently assigned to operators in Georgia (461 MHz) is still significantly lower than the total amount of spectrum available (illustrated by Figure 2).

Figure 2 Spectrum already assigned to MNOs in Georgia compared to total spectrum which could be used by MNOs



Source: Frontier Economics

Reflecting the importance of assigning the spectrum, the ComCom is now consulting on a new auction for some of the remaining 700MHz, 800MHz, 2100MHz, 2.6GHz and 3.5GHz spectrum.

As part of this auction process, the ComCom has revised its proposed reserve prices for the spectrum whilst leaving all other licence obligations unchanged. To inform its reserved prices, ComCom appointed EY to benchmark the value of spectrum identified in auctions in other jurisdictions. Based on its analysis, EY has estimated the following market values for spectrum in Georgia:

a) Estimated value of 1 MHz in the 800 MHz range - 2,373 585.00 GEL;

b) Estimated value of 1 MHz in the 700 MHz range - 2,062 560.00 GEL;

c) Estimated value of 1 MHz in the range of 3410-3710 MHz - 278 133.00 GEL;

d) Estimated value of 1 MHz in the 2600 MHz range - 183 429.00 GEL;

e) Estimated value of 1 MHz in the 2100 MHz range - 1,420,673.00 GEL.

Critically, we understand that ComCom has then directly applied these estimates to derive the reserve prices for the auction. That is, it has not applied any discount to these values, except

for the 700 MHz, 2.6GHz and 3.5GHz bands where the winning MNO would commit to offering network access to MVNOs.[4]

The following tables present the resulting reserve prices being proposed by the ComCom.

Table 3 Reserve prices for primary frequency lots in the 2024 auction, Georgian Lari

Band	MHz	Reserve price, with QoS, coverage and MVNO obligations	Reserve price, without MVNO obligations
Combined lot 700 MHz + 3400-3700MHz (2)	10 MHz (700) + 50 MHz (3400-3700MHz)	27,625,800	34,532,250

Source: ComCom

Table 4 Reserve prices for additional frequency lots in the 2023 auction, Georgian Lari.

Band	MHz	Reserve price, with MVNO obligations (and 20% discount)	Reserve price, without MVNO obligations (based on EY 2024 benchmark)
700MHz	10MHz (2 x 5)	16,500,480	20,625,600
800MHz	10MHz (2 x 5)	NA	23,735,850
2100MHz (FDD)	10MHz (2 x 5)	NA	14,206,730
2600MHz (FDD)	20MHz (2 x 10)	2,934,864	3,668,580
2600MHz (TDD)	10MHz	1,467,432	1,834,290
2600MHz (TDD)	5MHz	733,716	917,145
3400-3700MHz	50MHz	11,125,320	13,906,650

Source: ComCom

Note: We understand that these lots are not directly subject to coverage and QoS obligations, but since they cannot be acquired without primary lots (with heavy QoS and coverage requirements) they should still be considered in the context of these obligations

[4] In this circumstance, the ComCom proposes to apply a 20% reduction to the spectrum valuations derived by EY.

2.3 The estimated spectrum values for 2024 are up to 7 times higher than those in the 2023 auction

Figure 1, above, compares estimated spectrum values between the 2023 auction and those proposed by ComCom for the 2024 auction. Typically, where spectrum has previously (and very recently) failed to sell, we would expect to see reserve prices in the second auction being below, or at most equal to, the reserve prices in the first auction. This is simply because spectrum not being assigned through the first auction would tend to indicate that, combined with other licence obligations (coverage, minimum user-experienced speeds and access obligations), the reserve price had been set too high, i.e., above the value the mobile operators actually attach to the spectrum.

However, without providing any explanation as to why it believes this to be appropriate, ComCom has actually proposed a significant increase in spectrum values and reserve prices. That is, for the 800MHz band, its estimated spectrum value is now around three-times higher than that which applied in the 2023 auction. For the 2600MHz band, the estimated spectrum value is close to 7 times that which was used in the 2023 auction. As we set out later in this report, this appears significantly at odds with practice elsewhere and what first principles would suggest. It also places the forthcoming auction at significant risk of failure.

2.4 The purpose of this report

Frontier Economics has been commissioned by Silknet to review the Commission's approach to setting the proposed reserve spectrum prices and to assess their appropriateness, in the context of the Georgian regulatory framework and international best practice.

The remainder of the report is structured as follows:

- Section 2 outlines international best practice in setting reserve prices
- Section 3 – we review the EY business modelling approach which was used to inform the reserve prices in 2023
- Section 4 – we review the EY international benchmarking study and demonstrate that the EY approach is not consistent with international best practice and that the results of the study are unreliable due to anomalies in the inputs or errors in the calculations.
- Section 5 provides our recommendations.

3 International best practice in setting initial (reserve) prices

In this section, we summarise best practice in assigning spectrum and in setting reserve prices. We rely on precedent from Ofcom (the UK regulator and widely respected as a leading authority in the sector), industry bodies such as the GSMA, and other regulators in Europe. We also discuss the risks and inefficiencies associated with high reserve prices.

3.1 The purpose behind setting a reserve price for spectrum

When assigning spectrum, the regulators' key objective is to ensure that all spectrum is put into productive use. With more spectrum, operators can deliver mobile services in the most cost-efficient way, which in turn ensures that consumer benefits are maximised. Ofcom, one of the most respected regulators globally, states:

"*Our key objective when managing spectrum is to deliver its optimal use, meaning the use that delivers the greatest value to UK citizens and consumers*".[5]

An outcome in which, following an auction, some spectrum is left unassigned, is clearly not optimal. This is because that spectrum cannot then be used to support the delivery of services – either meaning that services are delivered at higher costs than would be necessary or not delivered (in the same quantity and to the same quality) as would otherwise be the case. Therefore, the regulators' objective is to assign all the spectrum available. Failing to assign the spectrum is considered a regulatory failure.

Given this objective, regulators typically set reserve prices at a low but non-trivial level. This is because the primary objective of the reserve price is to discourage speculative bidders from participating in the auction.[6] This means that reserve prices are typically set significantly below the expected market value, with competition in the auction leading to the auction generating an appropriate market price for the spectrum.[7]

Ofcom states:

5 https://www.ofcom.org.uk/siteassets/resources/documents/consultations/uncategorised/8010-spectrum-management-strategy/associated-documents/statement.pdf?v=334172. Para 1.10

6 Speculative bidders are those who do not have plans to use the spectrum, but would participate in the auction just in case the auction is not competitive / poorly-designed and they might be able to acquire a valuable asset at a low price.

7 We note, later in this section, one possible exception to this principle.

"*We generally adopt a conservative approach to setting reserve prices […] We proposed to set reserve prices that are materially lower than our benchmarks for possible market value (where meaningful benchmarks are available)*".[8]

This is consistent with the views expressed by the GSMA, who state:

"A regulator engaged in best practice should set auction reserve prices that are below a conservative estimate of true market value to enable price discovery and facilitate efficient allocations."[9]

In some very specific circumstances, regulators might choose to set the reserve price more in line with the expected spectrum value. This is in cases where little or no competition is expected for a particular spectrum block (for example, this may occur if a certain spectrum lot is reserved for certain bidders such as new entrants), and an auctioneer is still keen to ensure that the eventual acquirer of the spectrum pays the price that would have prevailed, had there been competition in the auction. However, even in those circumstances it may be prudent to err on the side of caution and to set the reserve price below the actual value, in order to ensure that the spectrum is not left unassigned.

As we set out below, there are risks of setting reserve prices too high. Critically, these risks are significant and asymmetric to the very limited risks that arise from setting reserve prices at a relatively low value (e.g., at a significant discount to the expected value of the spectrum). For example, if the reserve price is set too high and some spectrum remains unsold, consumers in the market would not be able to enjoy the benefits of better/ cheaper service; operators would become progressively more capacity constrained, and the government would receive less revenue than it would have received in a scenario where the reserve price is set conservatively.

Furthermore, when an auction is well-designed and demand for spectrum is expected to be high, there is no need to set high reserve prices. Strong competition in the auction would ensure that the auction price reflects the true value of the spectrum and the risk of spectrum being sold below its value is minimised. In these cases, there is no upside to setting high reserve prices as the true valuation should be revealed anyway. As we set out below, there is, however, a significant downside risk.

8 Consultation: Award of the 700 MHz and 3.6-3.8 GHz spectrum bands, paras 7.227 and 7.232. Available here, https://www.ofcom.org.uk/spectrum/spectrum-awards/award-700mhz-3.6-3.8ghz-spectrum

9 GSMA, 2017. Effective Spectrum Pricing: Supporting better quality and more affordable mobile services, page 3. https://www.gsma.com/connectivity-for-good/spectrum/wp-content/uploads/2018/12/Effective-Spectrum-Pricing-Full-Web.pdf

3.2 The risks of setting reserve prices too high

If a regulator chooses to set reserve prices close to its estimate of operators' valuation of spectrum, it will incur significant risks. These are set out below.

An excessive reserve price can lead to unsold spectrum

If the regulator overestimates the operators' valuation there is a risk that some (or all) of the spectrum is not assigned. In this case, the government is trading off large revenues per MHz with smaller nominal revenues, as it would likely increase total revenues by lowering reserve prices to ensure that all available spectrum is sold.

If spectrum is left unsold, this would lead to:

- a less optimal outcome for consumers, as operators are more likely to be capacity constrained; therefore, consumers will receive services of lower quality and/or at a higher price than they would have received in a scenario where all spectrum is allocated;
- a less optimal outcome for the government/regulator as – although fee per MHz is high – the total revenue to the exchequer is likely to be lower than if additional blocks had been sold at a lower price.

An excessive reserve price can dissuade weaker players/ new entrants from participating in an auction

High reserve prices might dissuade some operators (especially weaker players) from participating in the auction. This could further reduce competition, both in the auction and in the market subsequently.

Ofcom explains the risks of setting high reserve prices:

"*A high reserve price may discourage participation, particularly from smaller bidders. There are many possible uses and users for the spectrum, and we believe the auction should not unduly preclude bidders from having an opportunity to compete in the auction. In addition, high reserve prices may cause a risk of unsold spectrum.*"[10]

This is especially problematic if some of the spectrum in the auction is left unsold. It would imply that, had the reserve price been set lower, a small operator/new entrant could have potentially won some spectrum and improved its position in the market.

Furthermore, it is also worth noting that high spectrum costs mean that MNOs may have (i) less flexibility to offer competitive wholesale rates to MVNOs and/or (ii) less flexibility to offer

[10] https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-1-10-weeks/129955-award-of-the-700-mhz-and-3.6-3.8-ghz-spectrum/associated-documents/secondary-documents/award-of-the-700-mhz-and-3.6-3.8-ghz-spectrum-bands.pdf?v=323623 para 7.231

sufficient capacity to MVNOs if additional spectrum cannot be acquired at a reasonable fee. This appears to be contrary to the ComCom's objective of encouraging MVNO entry.

Excessive reserve prices can lead to sub-optimal consumer outcomes

We have set out above that if, following an auction, spectrum is unassigned, it will lead to sub-optimal consumer outcomes. But even if some or all of the spectrum is sold, there is still potentially a risk of consumer outcomes being sub-optimal. Work by the GSMA[11] has established a number of links between high spectrum costs, lower investment and lower network quality.

Given this reduction in investment, consumer outcomes in terms of coverage, network quality and technology upgrades are likely to be inferior compared to a scenario where operators do not face artificially high reserve prices.

3.3 There is no precedent for increasing reserve prices after the spectrum has failed to sell

As discussed above, regulators' objective is to assign all the spectrum in an auction. Therefore, to achieve this objective they typically set reserve prices conservatively.

In those cases where some spectrum is left unassigned, it is typically offered to the market later either at a lower price or at the same price (if there is clear evidence that the market has evolved, and the spectrum is worth more than it was worth at the time of the initial auction).

For example, in the 900 MHz spectrum auction in Austria, the unsold spectrum was subsequently auctioned two years later. The reserve price in the second auction was set significantly lower than the first auction. This stimulated auction participation (i.e., more bidders took part in the second auction) and all the spectrum was sold.

We are not aware of any regulators who have increased reserve prices after the spectrum was initially left unsold and then tried, shortly after, to sell the spectrum at that higher price. Given the logic of why reserve prices are used and the implications of spectrum being unassigned, this is not surprising.

11 GSMA (2017). Effective Spectrum Pricing: Supporting better quality and more affordable mobile services, https://www.gsma.com/connectivity-for-good/spectrum/wp-content/uploads/2018/12/Effective-Spectrum-Pricing-Full-Web.pdf

4 ComCom's proposed reserve prices are not supported by the evidence from the Georgian market

In this section, we comment specifically on ComCom's proposals. We begin by noting that the approach it has taken to determining the proposed reserve prices is not consistent with the regulatory framework under which it operates. We then consider how ComCom should have determined the appropriate reserve prices and conclude that ComCom has not followed this approach. For example, it has failed to reflect the actual characteristics of the market in its proposals and also failed to explain why it believes it is appropriate to increase significantly the reserve prices from the 2023 auction.

4.1 The ComCom's proposed approach is not consistent with the Georgian regulatory framework

Under its regulatory framework, ComCom is required, when setting reserve prices, to estimate the value of a radio frequency resource based on benchmarking and/or a business model approach:

- The benchmarking approach takes values (i.e., final achieved prices) from spectrum auctions in other jurisdictions and applies those to the market under consideration. In doing this, a regulator may need to make various adjustments to "normalise" prices between jurisdictions.
- In contrast, the business modelling approach to spectrum valuation ensures that the valuation is grounded in real-world operational conditions of the country / jurisdiction concerned. It assesses the value of additional spectrum to the operators by looking at the potential cost savings that a mobile network operator (MNO) can achieve by acquiring additional spectrum (i.e. avoided costs). These can be estimated by comparing the NPVs[12] of network costs with and without the additional spectrum over the licence duration.

Critically, we understand that under its regulatory framework, ComCom should have a preference for the business modelling approach.[13]

Furthermore, the ComCom should discount the value derived from either business modelling or benchmarking, considering factors such as market demand and license obligations[14], as

12 NPV = Net Present Value. It represents the value of a series of future cash flows, discounted at a specific rate, which reflects the time value of money and investment risk

13 Article 9 of ComCom resolution no. 13 provides that "*in the event that the estimated value of the 1 MHz resource for a specific section of the relevant radio frequency band is estimated using both methodologies, the business modelling methodology shall be given a priority*"

14 Article 9 of ComCom resolution no. 13 provides that "*A discount of 5% to 20% of the estimated value of the auctioned radio frequency spectrum (Pn*C) determined by the Commission's decision on announcing the auction, which is determined taking into account the market demand and license obligations*."

well as how reserve prices can encourage effective investments in the introduction of innovative technologies[15].

ComCom has clearly failed to comply with these obligations. For example, it has failed to take into account the fact that it was not able to sell the spectrum at the reserve prices used in 2023, i.e. that demand for spectrum at the 2023 reserve prices was below supply. It has also failed to show a preference, in estimating the value of spectrum, to the "business model" approach.

Furthermore, whilst it should have had a preference for the business modelling approach, ComCom appears to have compounded its erroneous decision to rely on the benchmarking approach by apparently not exploring, and certainly not explaining, the divergence in the results of the two studies (both carried out by the same consulting company). When carried out appropriately, business modelling and benchmarking should yield broadly similar estimates. The fact that one method (benchmarking) produced much higher values than the other method (business modelling) indicates underlying issues. As discussed above, the business modelling study used to set the reserve prices in 2023 failed to account for the stringent coverage and QoS obligations imposed by ComCom, which led to spectrum being left unallocated. This should have prompted much greater scrutiny of the counter-intuitive results of the benchmarking study, which certainly overstate the true value of spectrum in Georgia

In Section 5 of this report we review in more detail the benchmarking analysis that ComCom has undertaken. It is clear from this that there are multiple reasons why the results of the benchmarking study are unreliable and should not be used for setting reserve prices. As a minimum, when presented with such divergent results, the ComCom should have questioned them and should have reviewed and amended its approach to ensure that the results are consistent. This has not been done. Instead, the ComCom proposes to use the clearly incorrect estimates of spectrum values as reserve prices.

In the remainder of this section we focus on ComCom's failure to update its business model from 2023 and note that, had it done so, it would have had no grounds for the increase in reserve prices that it has proposed.

[15] Article 9 of ComCom resolution no. 13 provides that "*In order to encourage effective investments in the introduction of innovative technologies, the Commission is authorized to determine an additional discount on the estimated value of the radio frequency spectrum put up for auction (envisaged under the first paragraph of this article), which, including the discount provided for in the first paragraph of this article, should not exceed 80% of the estimated value of the radio frequency spectrum put up for auction*."

4.2 When setting reserve prices/ spectrum fees, regulators rely on market-specific evidence

When setting reserve prices or when setting spectrum prices administratively, regulators rely on market-specific evidence to the extent possible. While international benchmarks[16] and/or business modelling can be used, the preference is given to methodologies which make use of local evidence.

For example, when setting administrative fees for 3.4 - 3.6 GHz spectrum, Ofcom relied exclusively on the UK auction price for 3.4 GHz spectrum. Ofcom states:

"*In this case, … we have the outcome of the auction of the 2.3 and 3.4 GHz bands completed in April 2018. We consider this particularly relevant given it is a recent auction in the UK of spectrum in one of the same bands as the spectrum for which we are seeking to set <annual licence fee> (ALF) …. We note that there have been recent auctions of 3.4-3.8 GHz spectrum in other EU and non-EU countries. However, we consider that these auctions are less informative of the market value of H3G's UKB 3.4 and 3.6 GHz spectrum than the recent UK auction and therefore base our estimate of the appropriate lump-sum value only on the UK auction*."

If ComCom were to use the same approach, it would have set the new price below the 2023 reserve price, reflecting the fact that it was not able to sell the spectrum at the 2023 reserve price.

There have been no changes in the Georgian market that would justify these increases in the reserve prices

When setting the new reserve prices, the ComCom should at least have explained what has changed in the market since 2023 and which would justify such an increase. Even if the operators were able to deploy 5G more efficiently with the new spectrum, their costs of deploying 5G would still remain high (especially given the stringent coverage and QoS obligations), while their incremental (additional) revenues are likely to be low. This is because:

- The take up of 5G is likely to be slow initially (as consumers would need to buy new 5G-enabled handsets);
- Evidence from other markets suggests that consumers are not willing to pay a premium for 5G services. Therefore, the operators' ARPUs are unlikely to change significantly.
- Any new revenues streams (e.g. from business users and IoT) are unlikely to materialise for some time.

[16] International benchmarks are only used if the UK-specific values are not available and only to inform Ofcom's understanding of the relative values of different bands rather than absolute values. More details on Ofcom's use of international benchmarks is provided in Section X below.

4.3 To capture the characteristics of the Georgian market ComCom should have updated it business valuation modelling, including by taking into account strict coverage and QoS obligations defined for the primary lots

Business modelling is typically used by mobile operators to value spectrum in preparation for bidding in spectrum auctions. In many cases, regulators also use business modelling to inform their view of the reserve prices.

As part of this analysis, any model needs to account for demand forecasts, coverage obligations, operators' existing asset bases, site configurations in different geotypes, and different spectrum portfolio scenarios. It is generally based on an "average" hypothetical operator with a market share of 1/N (with N being the number of MNOs in the country), an existing network comprising 1/N of all active base stations, a default spectrum portfolio of 1/N of all spectrum assigned before the auction and a discounting rate of cashflows aligned with the local WACC defined for mobile networks.

The EY business model developed for ComCom

We understand that the EY model was constructed in 2020 and was specifically tailored to the Georgian market, i.e. it incorporated various market-specific parameters and forecasts to estimate spectrum values for different spectrum bands in Georgia. These parameters included Georgia-specific, data traffic projections, WACC, the quantity of spectrum made available, existing spectrum portfolios, the refarming timeline, and the general coverage timeline. As set out previously, ComCom then discounted these values to set its final reserve prices.

From the information on the model that has been made available it appears to follow, at a high level, the principles we have outlined. in addition, From the information available during 2023 public consultation, we understand that the business model constructed by EY in 2020 did not take into account strict coverage and QoS parameters that were later added to the primary lots in the 2023 auction and are attached to 2024 primary lots.

When setting the 2024 proposed reserve prices ComCom should have updated the 2020 business valuation model considering coverage and QoS obligations and recent trends and developments in the Georgian market that could affect spectrum values. s, l

Revisiting and refining the business valuation model would have been particularly beneficial for three main reasons. Firstly, the Georgian regulatory framework mandates that preference should be given to valuations based on business modelling over those derived solely from benchmarking. Secondly, an updated business valuation would serve as a critical validation tool for the findings from the 2024 benchmarking study, especially given the significant increases in spectrum values suggested by the study, which ComCom has not explained.

Thirdly, the fact that the 2023 auction did not result in all the spectrum being assigned suggests strongly that even those reserve prices were set above market clearing prices (true spectrum values taking into account stringent coverage and QoS obligations), let alone the proposed higher reserve prices in 2024 being above those spectrum values.

As discussed earlier, when both business modelling and benchmarking are implemented correctly, they should yield comparable results. The fact that the two methods have produced markedly different outcomes in this case suggests potential inconsistencies that warrant further investigation. It is crucial for ComCom to reconcile these differences to ensure the accuracy and reliability of its proposed spectrum reserve prices and eventually ensure an effective spectrum assignment procedure.

To achieve this, ComCom should have amended the original model to reflect new market information, particularly considering that the spectrum did not sell at the prices set in 2023 considering stringent coverage and QoS obligations. Incorporating any new data and market developments would likely result in updated business modelling outcomes that are more aligned with current market conditions. These revised results should have been the basis for setting the 2024 reserve prices, potentially leading to more realistic and achievable price points that better reflect the true value of the spectrum in the Georgian market.

5 The benchmarking study used by ComCom to set its reserve price is flawed and cannot provide a reliable estimate of the market value for the spectrum bands considered

To accurately compare price data from different spectrum awards, it is crucial to adopt a robust and methodical approach that accounts for various factors affecting these prices. This process involves two main steps: (i) converting the prices into a common metric (the normalisation step) by applying adjustments for differences between spectrum awards and (ii) identifying a suitable sample of comparable auctions (the treatment of benchmarks or sampling step).

Although we believe that, in setting reserve prices, business modelling should take primacy over any benchmarking, in this section we review the extent to which the benchmarking study prepared for ComCom is likely to provide a robust basis for estimating the value of spectrum. In so doing, we have identified issues with both the normalisation step and the sampling step. In particular, we identify three key issues which imply that the results of the EY benchmarking study are uninformative for the valuation of spectrum bands in Georgia.

1. **Normalisation of benchmarks.** We explain that the EY benchmarking study departs from recognised best practice when normalising benchmarks across auctions. These deviations likely lead to less reliable comparisons of spectrum value across countries, impacting the accuracy and usefulness of the analysis.

2. **Anomalies in the inputs used.** We identify examples of anomalies in the calculations of the benchmark prices used in the EY benchmarking study. These anomalies cast significant doubt on the reliability of the results of the study.

3. **Treatment of benchmarks.** We explain that the EY benchmarking study does not give any consideration to whether the prices in individual auctions are likely to reflect market value in Georgia. As a consequence of this, the samples used in the analysis likely include a number of auctions which do not reflect market values in either the national market or Georgia.

Because of the limited information provided by ComCom it is not possible to correct this study and hence to update the spectrum values derived by EY for ComCom. However, given that this study has resulted in estimated spectrum values (and then reserve prices) which are already above the previous reserve prices which led to spectrum not selling one year ago, it is not unreasonable to surmise that a properly conducted benchmarking study would provide a basis for setting reserve prices significantly below the levels now proposed by ComCom.

5.1 Normalisation of benchmarks

In this sub-section we set out the key best practice principles that should be adopted when normalising auction prices in spectrum benchmarking analyses. We then contrast these principles to the ones adopted in the EY benchmarking study.

5.1.1 Best practice for normalising benchmarks

International best practices, such as those outlined by Ofcom[17] and ComReg[18], provide a comprehensive framework for normalisation adjustments.[19] The approaches taken by these regulators include several key steps:

1. **Adjusting for licence duration**: Ofcom uses the post-tax cost of capital (WACC) to adjust nominal prices for differences in licence duration. This ensures that spectrum prices are normalized for varying lengths of spectrum licences across different countries, providing a fair basis for comparison. Similarly, ComReg normalises licence lengths by adjusting for the real pre-tax WACC.

2. **Adjusting for inflation**: To compare prices from different years on a like-for-like basis, Ofcom converts all historical prices to current prices using the UK Consumer Price Index (CPI). This adjustment ensures that the price data reflects current economic conditions, eliminating the distortions caused by inflation over time. ComReg's approach is to account for inflation by applying US CPI indexation to the prices after they have been converted to USD, which is another way of ensuring consistency between the currencies in which the auction price is specified and inflation.

3. **Converting Prices to a Common Currency**: Ofcom convert all prices to British pounds (£) using a PPP-adjusted exchange rate. ComReg also perform all currency adjustments (from local currency to USD at the time of the auction, then from USD to Euro at the time of benchmarking) using PPP-adjusted exchange rates only. Adjusting for PPP is vital because it accounts for differences in price levels between countries, ensuring that the comparison reflects the true economic value of spectrum relative to local purchasing power.

4. **Scaling for population size**: Ofcom's approach is to adjust prices for differences in population size by scaling them by the ratio between the UK population size and the specific country's population. Similarly, ComReg accounts for population by expressing the prices as MHz per capita, i.e. per population covered by the licence. This adjustment

[17] See "International benchmarking of 900MHz and 1800MHz spectrum value, Final Report for Ofcom, 2013", https://www.ofcom.org.uk/siteassets/resources/documents/consultations/uncategorised/8013-900-1800-mhz-fees/associated-documents/secondary-documents/benchmarking.pdf?v=333624

[18] https://www.comreg.ie/media/dlm_uploads/2019/06/ComReg-1959b.pdf

[19] These approaches have also been consulted on extensively (see for examples, paras. A7.21 – A7.31 of Annex 7 to Ofcom, 2014. Annual licence fees for 900 MHz and 1800 MHz spectrum).

is crucial because it allows for meaningful comparisons between countries of different sizes, ensuring that the price data is reflective of the spectrum value per capita.

By following these rigorous adjustment steps, one can ensure that the spectrum price data from different auctions is comparable and reflective of the true market value, thus facilitating a more accurate and meaningful international comparison of spectrum awards.

5.1.2 The EY normalisation approach

In contrast, EY's approach to normalizing spectrum prices departs from the best practice described above in a number of ways.

1. **Lack of transparency on license duration adjustments**: EY's approach lacks clarity on how it adjusts for differences in the duration of spectrum licenses. Specifically, there is no information provided on how EY handles licenses with extensions, such as those with an initial term of 15 years plus a 5-year extension. This omission contrasts with Ofcom's method, which adjusts nominal prices using the post-tax cost of capital (WACC), and ComReg's approach which uses real pre-tax WACC, to account for varying license durations. Without a consistent adjustment for license length, EY's normalized prices may not be directly comparable across countries with different licensing terms.

2. **Inconsistent use of inflation rates and currency**: EY states that it uses Consumer Price Index (CPI) inflation for each respective country, despite expressing prices in USD. This is problematic because it combines inflation rates based on local currencies with prices expressed in a foreign currency, which can introduce inconsistencies and distortions in the data. Ofcom, on the other hand, converts all historical prices to current prices using the UK CPI, ensuring consistency in how inflation adjustments are applied across all countries. ComReg also avoids such inconsistencies by applying the US CPI index after the prices have already been converted to USD.

3. **Normalization by GDP per capita instead of PPP**: EY's approach of normalizing prices by GDP per capita rather than using PPP-adjusted exchange rates is another departure from international best practice. GDP per capita does not account for the differing purchasing power across countries, which is a crucial factor when comparing economic values internationally. PPP-adjusted exchange rates provide a more accurate measure of relative price levels and economic value, making them the preferred approach for normalizing spectrum prices.

4. **No Adjustment for population size differences**: Unlike Ofcom and ComReg, which adjust prices for differences in population size by scaling them to the UK and local populations, respectively, EY does not make such adjustments. Instead, EY merely excludes countries that are significantly larger than Georgia. This exclusionary approach deviates from international best practice, which requires regulators to normalize prices by population to ensure that comparisons account for the economic value of spectrum on a per capita basis. Indeed, a number of countries in the EY sample have much larger

population than Georgia. For example, Greece and Portugal have population of 10.4m each, Hungary – 9.6m, Denmark – 5.9m, Slovakia – 5.4m, while Georgia only has 3.7m. By including many counties with much larger population and not adjusting for population differences, the EY study most like overstates the value of spectrum in Georgia. It is very important that any benchmarks used are adjusted for the differences in population size.

These deviations likely lead to less reliable comparisons of spectrum value across countries, impacting the accuracy and usefulness of the analysis.

5.2 Anomalies in the inputs used in the EY benchmarking study

We have also identified certain anomalies in the calculations of benchmarks that are used in the EY benchmarking study. We set out two such examples below. These examples cast doubt on the results of the study, particularly in light of the fact that ComCom has not published the data underlying the EY benchmarking study. This means that: (a) we are unable to assess what is driving these anomalies, and (b) nor are we able to investigate whether other inputs or calculations are affected by similar errors.

Given that Silknet has not been granted full access to EY's calculations, we are not able to determine if there are other anomalies. However, these demonstrate clearly that, without further review and corrections, the benchmarking study is not fit for purpose as an input to deriving reserve prices for the forthcoming auction in Georgia.

Example 1: The Greek 800 MHz and 700 MHz auctions

The EY benchmarking study includes the 2014 and 2020 Greek auctions as benchmarks to calculate an average price for the 700 MHz and 800 MHz bands. The prices paid and the amount of spectrum auctions are as follows:

- In October 2014, each of the three Greek MNOs acquired two lots of 2x5 MHz of 800 MHz (with 15 year licence periods). The total price paid across all lots (i.e. for 2x30 MHz of spectrum) was EUR 309.1m.[20]
- In December 2020, each of the three Greek MNOs acquired two lots of 2x5 MHz of 700 MHz (with 15 year licence periods). The total price paid across all lots (i.e. for 2x30 MHz of spectrum) was EUR 151.8m.[21]

Table 5 below contrasts the **actual prices paid** with the benchmarks calculated in the EY benchmarking study. It shows that, although the total (and per MHz) amount actually paid by operators for 800 MHz spectrum is **double** the amount paid for the same amount of 700 MHz spectrum, the EY benchmarking study reports remarkably **similar** normalised values for the

20 https://www.eett.gr/opencms/opencms/sites/default/admin/downloads/News/Auction_results_eng.pdf and https://www.eett.gr/en/deltia_tipou/greek-telecoms-regulator-raises-381-1-million-euros-in-mobile-spectrum-auction/

21 https://www.telcotitans.com/network-and-digital/greek-5g-auction-exceeds-targets-builds-innovation-kitty/2626.article and https://www.telecompaper.com/news/greece-raises-eur-372-million-in-5g-spectrum-tender--1366123.

Greek 700 and 800 MHz observations. It is not possible that these inconsistencies between actual prices and normalised prices (according to EY) are driven by changes in the economic indicators used in the normalisation calculation (i.e. inflation and GDP per capita). This is because there have only been relatively small changes in these metrics in the six years between the 2014 auction and the 2020 auction.[22]

Table 5 Greek 700 and 800 MHz auctions results, compared to figures reported in EY benchmarking study

	Total amount of spectrum auctioned	Total price paid	Normalised value reported in EY benchmarking study
700 MHz	2x30 MHz	EUR 151.8m	281.53
800 MHz	2x30 MHz	EUR 309.1m	281.40

Source: EY benchmarking study, EETT (see source/(s) in footnotes)

Example 2: The Croatian 800 MHz and 700 MHz auctions

The EY benchmarking study includes the 2021 and 2023 Croatian auctions as benchmarks to calculate an average price for the 700 MHz and 800 MHz bands. The prices paid (as reported by the regulator) and the amount of spectrum auctions are as follows::

- In 2021, each of the three Croatian MNOs acquired a block of 2x10 MHz of 700 MHz spectrum (with 15 year licence periods), paying a combined total of HRK 140m (EUR 18.7m) for their licences.[23]
- In 2023, each of the three Croatian MNOs acquired a block of 2x10 MHz of 800 MHz spectrum (with 15 year licence periods), paying a combined total of EUR 39.6m for their licences.[24]

Table 5 below contrasts the **actual prices paid** with the benchmarks calculated in the EY benchmarking study. It shows that, although the total (and per MHz) amount paid by operators for 800 MHz spectrum is **double** the amount paid for the same amount of 700 MHz spectrum, the EY benchmarking study reports a **lower** normalised value for 800 MHz spectrum than 700 MHz spectrum. As with the Greek example, it is not possible that these inconsistencies

22 Greek GDP per capita decreased by c.18.5% in the six year period from 2014 to 2020 (from $21,616 to $17,617). Cumulative inflation in Greece between 2014 and 2020 was -1.83% (an average of -0.3% per year). Neither of these changes are material enough to lead to a change in results. Source: https://data.worldbank.org/country/greece and https://www.officialdata.org/greece/inflation/2014?endYear=2020&amount=100

23 https://5gobservatory.eu/croatia-completes-5g-spectrum-auction/ and https://www.hakom.hr/en/hakom-awarded-radio-frequency-spectrum-for-the-fifth-generation-mobile-communications/9081

24 https://www.hakom.hr/en/hakom-has-awarded-spectrum-to-mobile-communications-networks/10500

between actual prices and normalised prices (according to EY) are driven by changes in the economic indicators used in the normalisation calculation (i.e. inflation and GDP per capita). This is because there have only been relatively small changes in these metrics given that they are only two years apart.[25]

Table 5 Croatian 700 and 800 MHz auctions results, compared to figures reported in EY benchmarking study

	Total amount of spectrum auctioned	Total price paid	Normalised value reported in EY benchmarking study
700 MHz	2x30 MHz	EUR 18.7m	143.7
800 MHz	2x30 MHz	EUR 39.6m	50.8

Source: EY benchmarking study, HAKOM (see source/(s) in footnotes)

5.3 Treatment of benchmarks

As explained in Section 4.2, regulators should prioritise market-specific evidence (i.e. Georgian market evidence) when making decisions on reserve prices. However, there is also a well-established approach to the treatment of international benchmarks that should be used in situations where market-specific data is not available or where international comparators can be used to supplement market-data.

In this sub-section we set out the key best practice principles for identifying a suitable sample of comparable auctions in a benchmarking analysis. We then contrast these principles to the ones adopted in the EY benchmarking study.

5.3.1 Best practice in the treatment of benchmarks

When carrying out benchmarking analysis, it is important to consider:

- whether the values from each auction are likely to reflect market value in the country concerned (e.g. whether the auction price in Greece reflects the market value of spectrum in Greece); and

[25] Croatian GDP per capita increased by c.17.8% in the two year period from 2021 to 2023 (from $17,943 to $21,459). The average annual inflation in Croatia was 9.3%. Neither of these changes are material enough to lead to a change in results. Source: https://data.worldbank.org/country/croatia

- whether market value in the country concerned is likely to reflect market value in the country in question (e.g. whether the value of spectrum in Greece and is likely to reflect the value of spectrum in Georgia).

The approach used by Ofcom provides an example of how to apply these principles in practice. That is, when considering which benchmarks to use and the relative weight to place on each benchmark, Ofcom assesses each benchmark individually and comes to a view whether this benchmark is reliable and informative of the spectrum value in the UK. It then categorises all available benchmarks as Tier 1 (reliable), Tier 2 (partially reliable) and Tier 3 unreliable.

1. Ofcom's criteria for a Tier 1 benchmark are that:

   - the auction prices appear likely to have been primarily determined by a market-driven process of bidding in the auctions (generally this means the prices were not set by reserve prices);
   - based on the evidence available to it, the relative prices in the auction are at least as likely to be based on bidders' intrinsic valuations of spectrum as on strategic bidding; and
   - the outcome appears likely to be informative of forward-looking relative spectrum values in the UK, having regard to country-specific circumstances and auction dates.

2. For Tier 2 benchmarks, Ofcom considers that, whilst there is some evidence that the relative auction prices reflect bidders' relative intrinsic valuations of different bands, the outcome is "*less informative of forward-looking relative spectrum values in the UK*".

3. Tier 3 benchmarks are those which fail to meet the criteria of either Tiers 1 or 2 and are excluded from consideration. Tier 3 benchmarks are usually cases where Ofcom considers that the outcomes of the auction "*reflect value of reserve prices set by the regulator rather than the market value or bidder's relative intrinsic valuations of different bands*", which is typically indicative of the final auction value being equal or close to the reserve price.

This assessment also takes into account the impact of coverage (and quality of service) obligations on the price of the auctioned spectrum. Where Ofcom identify situations where coverage obligations require deployment significantly in excess of commercial levels (meaning that the auction price could risk understating the value of that band) they factor this into their assessment of which tier the benchmark should sit in.[26]

[26] https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-2-6-weeks/221990-proposed-annual-licence-fees-for-2100-mhz-spectrum/associated-documents/1900_2100-mhz-statement-annex.pdf?v=327312 footnote 29

5.3.2 The EY approach

We have assessed the EY approach against these best practice principles. We find, based on the evidence provided in the EY report, that:

- the EY benchmarking study does not give any consideration as to whether the prices in individual auctions are likely to reflect market value in Georgia; and
- as a consequence, the samples used in the analysis likely include a number of auctions which do not reflect market values in the national market and/or in Georgia.

These issues are discussed in more detail below.

No discussion of whether the prices in individual auctions are likely to reflect market value in Georgia

Contrary to best practice, the EY benchmarking study does not have any discussion of individual benchmarks and their reliability. Instead, it calculates a simple average across the auctions it shortlists in each band.

This approach is particularly problematic given the enormous range of prices included in the samples used to calculate the average price for each band. For example, the highest value in the 700 MHz sample (Greece: $281.5) is 42 times higher than the lowest value in the 700 MHz sample (Latvia: 6.7). The EY study does not pause to discuss what could have caused these differences and to assess whether these differences reflect differences in spectrum value in these countries, or were caused by anomalies in auction design or other market features (e.g. artificial spectrum scarcity).

The inclusion of benchmarks that are unlikely to reflect market prices in their own markets

As a consequence of not considering the appropriate of the observations in each sample, the samples used in the EY benchmarking study likely contains a number of observations that do not reflect market values (either in national markets and/or in Georgia).

By way of example, when Ofcom carried out a similar exercise, it determined benchmarks from Greece, Croatia, Iceland and Norway not to be informative of prices in the UK market (usually because they did not reflect market values in the national market). As a result, Ofcom excluded these observations from its analysis. In relation to the Greek benchmarks, Ofcom states:

"We consider these benchmarks to be Tier 3 evidence. The 800 MHz and 2.6 GHz bands both sold at or very close to reserve price in 2014 as did the 700 MHz and 2100 MHz in 2020. As a result, we consider that the benchmarks largely reflect the relative value of reserve prices

set by the regulator rather than market value or bidders' relative intrinsic valuations of different bands, and as such do not satisfy the first criteria for either Tier 1 or Tier 2."[27]

Indeed, if spectrum was sold at the reserve price without any actual bidding in the auction, such auctions are unlikely to reflect the market value of spectrum in that country. This is especially the case if some spectrum was left unallocated. The latter situation would clearly indicate that the market value in the country is below the auction reserve price. Even if all spectrum was sold, but there was no actual bidding in the auction, this would indicate that the reserve price was choking off demand for spectrum, which again would be indicative of the reserve prices being set above the true market value of spectrum in the market.

As shown in the table below, Ofcom cites similar reasons for excluding a number of other benchmarks. Each auction included in the table is used as a datapoint in the EY benchmarking study.

Table 6 Ofcom Tier 3 auctions that are used in the EY benchmarking study

Country	Auction	Band	Reason
Croatia	January 2019	2100MHz	1st price sealed bid auction for 5 year licence
Greece	October 2014	800MHz	Spectrum sold at reserve price
Greece	October 2014	2.6GHz	Spectrum sold at reserve price
Greece	December 2020	700MHz	Spectrum sold at reserve price
Greece	December 2020	2100MHz	Spectrum sold at reserve price
Greece	December 2020	3.5GHz	Spectrum sold at reserve price
Norway	June 2019	700MHz	Spectrum sold at reserve price

Source: *Ofcom, https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-2-6-weeks/221990-proposed-annual-licence-fees-for-2100-mhz-spectrum/associated-documents/1900_2100-mhz-statement-annex.pdf?v=327312*

27 https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-2-6-weeks/221990-proposed-annual-licence-fees-for-2100-mhz-spectrum/associated-documents/1900_2100-mhz-statement-annex.pdf?v=327312, para A3.128

Note, however, that it is not sufficient to simply remove these observations for the analysis, as Ofcom did not evaluate all the benchmarks used by the EY. It is highly likely that some other benchmarks might also be affected by similar issues and therefore should be excluded.

Based on the discussion of best practice above, the EY study should have assessed each benchmark individually and to come to a view on whether these benchmarks are informative of the value of spectrum in their respective markets, i.e. whether they indeed reflect bidders' true valuations, as opposed to anomalies in the auction design (e.g. artificial spectrum scarcity or high reserve prices that choke off demand).

6 Our conclusions and recommendations

In this report we have identified a number of issues with ComCom's approach to setting reserve prices in 2024. In particular, it is not consistent with the Georgian regulatory framework because:

1. ComCom has given preference to the benchmarking study rather than the business modelling approach (which is contrary to the regulatory framework). As the results of the benchmarking study are significantly higher than the results of the business modelling approach, ComCom's approach is likely to significantly overstate the value of spectrum on offer.
2. ComCom has disregarded the fact that it failed to sell spectrum in 2023 at lower reserve prices. It has certainly not explained what has changed in the market between 2023 and 2024, which would justify a 3-to-7 fold increase in the spectrum value estimates. Our analysis suggests that the changes in the market between 2023 and 2024 are minimal and would not explain the proposed increase in reserve prices.
3. In deriving the reserve prices for the spectrum lots without an MVNO access obligation, ComCom has not applied any discount to the spectrum values derived from the benchmarking study. This is despite the fact that the regulatory framework stipulates that, when deriving reserve prices, the estimated spectrum values should be discounted taking into account local market conditions.

ComCom's proposed reserve prices in 2024 are set based on EY's benchmarking study. As set out above, this should not be the primary source of evidence used to set these reserve prices. In addition, given the issues identified above, the benchmarking study used by ComCom is fundamentally flawed and cannot be relied upon to set spectrum reserve prices in Georgia.

1. The normalisation methodology used in the study departs significantly from international best practice. In particular, the study fails to adjust for differences in population size, while using multiple benchmarks with population size 2-3 times larger than Georgia's population. This is likely to systematically bias the results upwards.

2. **There are clear anomalies in the values used in the study**, which are likely to be driven by mathematical errors. The examples of these anomalies are provided in Section 5.2.

3. **The EY benchmarking study does not give any consideration as to whether the prices in individual auctions are likely to reflect market value in Georgia,** as a consequence, the samples used in the analysis likely include a number of auctions which do not reflect market values in the national market and/or in Georgia (for example, it includes a number of benchmarks considered unreliable by other regulators).

Our recommendations

ComCom should amend its approach to ensure that it is consistent with the regulatory framework in Georgia. In particular, it should rely primarily on the business modelling approach (as stipulated by the framework). The valuation model constructed in 2020 should be updated taking into account coverage and QoS obligations attached to the primary lots and the latest developments in the market. It should also take into account the fact that the results produced in 2023 overstated the spectrum value in 2023 (as ComCom failed to sell the spectrum in 2023), which implies that some assumptions were too optimistic and not consistent with the market conditions in Georgia.

2. International benchmarks should only be used by ComCom as a cross-check, but not the primary source of evidence on the spectrum values. If international benchmarks are used as a cross-check, the normalisation approach needs to be adjusted in line with international best practice set out in this report.

If carried out appropriately, international benchmarking and business modelling should produce broadly similar results. If there are any significant discrepancies between the two sets of values, the regulator needs to explain what drives these differences. Any errors identified in the process need to be corrected.

3. When setting reserve prices, ComCom should take into account coverage and QoS obligations attached to licences and apply discounts to the estimated spectrum values in order to be consistent with the Georgian regulatory framework and with international best practice. Setting reserve prices too high is likely to result in spectrum being left unsold and left fallow, which is considered a major regulatory failure.