EINSCHREIBEN

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6 April 2018

Response to invitation to tender for frequency blocks for the national provision of mobile telecommunications services in Switzerland

Dear Ladies and Gentlemen,

We refer to the consultation documents as regards to the Invitation to tender for frequency blocks for the national provision of mobile telecommunications services in Switzerland and herewith provide you with our response to the structure and process of the award as well as detailed comments to the clock auction rules.

ComCom's number one priority must be to preserve the three-player market by ensuring all operators exit the auction with a critical mass of spectrum at an affordable price level, so as to enable them all to invest and compete in providing 5G services. We appreciate ComCom has chosen a simple clock auction design, however, based on the current structure, process and rules there is a high risk that block obtaining the critical minimum mass of spectrum and as a result This as a results of (i) an insufficient degree of incentive to moderate demand, so that are discouraged from incorporating anti-competitive blocking value into their bids, (ii) unreasonably high spectrum caps, (iii) and (iv) uncertainties as regards to the effective usage and the value of the new spectrum given the very tight emission limits that hinder the 5G implementation.

Hence Salt is urging ComCom to adapt the structure and rules as follows:

- 1. Adapt auction information policy and provide information about aggregate demand by band on an anonymous basis after each auction round.
- 2. Reduce auction bid increments to no more than 5-10%.
- 3. Reduce proposed spectrum caps so to allow each operator to obtain the critical minimum spectrum mass.
- 4. Apply reasonable reserve prices and taking into account current tight NIS limits hindering 5G implementation.
- 6. Clarify the activity rules, exit bids and price determination rules.

Detailed comments:

(1) NISV hinders implementation of 5G

We took note that the Council of States (Ständerat) on 5 March 2018 has voted against a revision of the NISV and relaxation of NIS thresholds. We believe that this is a wrong decision and that such decision will hinder the introduction of 5G in Switzerland to the detriment of the Swiss consumers and the whole economic platform of Switzerland as such. We are also of the view that this decision will need to be reconsidered in the mid-term.

An allocation of the new 5G spectrum by means of an auction can only be envisaged if the value of the spectrum for the participants of an auction can be clearly determined.

The consequence of current tight emission limits is that the deployment of additional spectrum bands by mobile operators is severely limited, as the emissions budgets are already used up by existing spectrum deployments. The deployment of additional spectrum bands under current thresholds will require a substantial increase in the number of base station sites, which is not feasible owing to a range of constraints (long permitting process, strong opposition, inflated rent expectations, etc.). The consequence is that additional spectrum is effectively useless under the current regulations.

It is also unclear how 5G antenna systems (MIMO antennas with beamforming) are to be treated in the calculations. The current calculation methodology does not take into account such systems. Further, it is important to create a means of allocating the emissions budgets between the mobile operators, otherwise conflicts will arise owing to a 'first come-first serve' policy

Salt is of the view that under such circumstance a fair allocation of the spectrum as planned by ways of auction in 2018 is not possible. Awarding the spectrum as planned will create large uncertainty for bidders regarding when, whether and how the spectrum would become usable.

Such uncertainties and risks are clearly to the disadvantage of smaller participants in an auction and favor the incumbent Swisscom.

(2) Detailed Comments on Clock Auction Rules

Salt welcomes the decision to use a clock auction design for the forthcoming spectrum award. The proposed format is reasonably easy to understand and avoids creating undue strategic complexity for bidders. Importantly, as compared to say the CCA, this format offers a more level playing field for smaller operators, such as ourselves, to compete against Swisscom, owing to the adoption of a uniform pricing rule. While we have concerns regarding specific aspects of the rules, and also the proposed spectrum caps, we are confident that this is the appropriate auction format.

Our concerns are focused on four aspects of the proposed design:

- 1. Information policy The draft rules imply that ComCom proposes to run the auction without providing any information on demand on a round-by-round basis. This would be a serious error, undermining some of the benefits of adopting the clock auction design by negating scope for price discovery and introducing a significant risk of unsold lots and inefficiency. We propose ComCom instead provides information about aggregate demand by band on an anonymous basis, which is the normal approach for a clock auction.
- 2. Bid increments A maximum bid increment of 50% is much too high, given the adoption of substantial reserve prices. We propose a maximum of 20% and prefer that ComCom actually adopts increments of no more than 5-10%.
- 3. Activity rules, exit bids and price determination We are generally supportive of the proposed rules but have some concerns about the application of the exit price rules, and wish to clarify the rules regarding switching between bands.
- 4. Eligibility points We support the adoption of an eligibility point structure that facilitates switching between bands. It is too early for us to comment on the specific weightings proposed by ComCom.

Our more detailed comments are as follows:

a. Information Policy

Salt believes that it is a key feature of the clock auction design that, at the end of each round, bidders are provided with information about the level of excess demand in each category. This is essential information to facilitate price discovery, enabling bidders to refine their valuations and views on plausible spectrum outcomes. Without such information, bidders are bidding in the dark, and there is a high risk that they make mistakes, for example switching or dropping demand too quickly or slowly in response to price changes. Notwithstanding the exit price option, in the

context of a clock auction, this greatly exacerbates the risk of inefficient "overshoot" and unsold lots.

Accordingly, Salt is very concerned about the phrasing of clause 3.9.1, which appears to imply that ComCom is contemplating only telling bidders if there is excess demand or not in each band (which can be inferred anyway from whether or not prices will increase next round). This is clearly not sufficient information to facilitate a smooth and efficient bidding process.

Our preferred approach, similar to the last Swiss auction and the way that most multi-round spectrum auctions in Europe are run, is that ComCom discloses aggregate demand by band at the end of each round on an anonymous basis. This approach provides a good balance between promoting transparency and price discovery on the one hand, while limiting scope for strategic bidding because (with 3 or more bidders) no one bidder can have certainty regarding the level of demand from individual rivals. Releasing aggregate demand has an established track record having been applied successfully in many past auctions in Europe and elsewhere. In contrast, our understanding is that the approach of not disclosing demand was a key factor that led to excessive prices in much criticized Austrian 4G auction as well as in the French 700 MHz auction.

It is not clear to us why ComCom would even consider restricting aggregate demand. Possibly, the design team has some concerns regarding the potential for demand reduction incentives. We do not think this should weigh heavily in your deliberations, for multiple reasons. Firstly, if there is any demand reduction, this is much less likely to have any impact on the efficiency of the auction outcome than there being unsold lots owing to overshoot. This is because bidders generally should have a good idea of what outcomes are feasible and will only moderate their demand if sensible to do so. Secondly, given the asymmetries between incumbent operators in the Swiss market, it is a positive feature that the auction design exposes Swisscom to some degree of incentive to moderate their demand, so that they are discouraged from incorporating anticompetitive blocking value into their bids. Thirdly, ComCom has proposed substantial reserve prices, so should have no concerns regarding revenues, which anyway are not a primary objective.

If, notwithstanding, the strong arguments we have presented in favour of releasing aggregate demand in full, the design team still thinks that some restrictions are necessary, then a compromise approach would be to release partial information. For example, ComCom might disclose aggregate demand in units of 2 lots, e.g. 5/6, 3/4, 1/2, 0, -1/-2 etc. on a band-by-band basis. We understand that this approach was used for the Austrian 3.4 GHz auction. For the UK 2.3 GHz & 3.4 GHz auction OFCOM has disclosed excess demand at the end of each day¹. For the avoidance of doubt, we strongly prefer full aggregate demand disclosure on an anonymous basis after each auction round, but partial disclosure of ranges would be much better than having no information.

While we were drafting this response, the Austrian regulator, RTR, which we understand is also advised by DotEcon, published draft rules for its award of 3.4 to 3.8 GHz spectrum.² Our understanding is that RTR is planning to use a similar clock auction format to that proposed by ComCom and has proposed to release aggregate demand information in ranges. For each region, RTR will tell bidders whether excess demand is either (strictly) less than 5 blocks, between 5 and 10 blocks or more than 10 blocks. RTR will also inform bidders of the exact amount of excess

https://www.ofcom.org.uk/about-ofcom/latest/features-and-news/spectrum-auction-guide

² https://www.rtr.at/de/inf/Konsult_5GAuktion2018_2

supply in a region (if there is any).³ Given the smaller sizes of bands available in Switzerland, an equivalent rule in our award would involve smaller ranges by band (e.g. 2 blocks as described above).

b. Bid increments

ComCom has proposed substantial reserve prices for all bands. As discussed below, we think some of these prices are already too high given lack of certainty over equipment ecosystems. Against this background, it is essential that ComCom adopts modest bid increments, so as to facilitate gradual price discovery during the clock auction and allow scope for bidders to switch demand between bands in response to changes in relative prices. We understand that ComCom wishes to retain flexibility with respect to how it runs the auction, but a proposed maximum increment of 50% is much too high. Such large price steps would not allow for efficient switching of demand between bands, raising the risk of unsold lots and an inefficient outcome. Furthermore, even the possibility of such large increases in prices on a round-by-round basis exposes smaller bidders to unmanageable governance risk.

We propose instead that ComCom sets a maximum bid increment of 20%. We further request that, prior to the auction, ComCom provides guidance on the likely level of bid increments that will be applied; our preliminary view is this should be no more than 5-10% per round.

c. Activity rules, exit bids and price determination

The sections of the auction rules (Annex II) regarding bid activity, exit prices and price determination are the most difficult to follow. While the examples are helpful in interpreting the rules, we do think that prospective bidders would benefit from a further iteration of these rules with greater clarity.

Exit bids

Our understanding is that exit bids are only taken into consideration if placed in the final clock round. In this case, they will be used if applicable to backfill unsold lots and set the uniform clock price. This is a very limited option. It implies that if competition in one band closed earlier than another band, then exit bids would be considered only in the band that closes last and not the first one. (We note that there is an exception here for the 700 MHz paired band, given the special 2-bidder 2x25 MHz cap.) This rule might therefore prevent efficient backfill of unsold lots leading to an inefficient outcome. If this rule is kept, it makes it even more important that ComCom

³ The relevant passage in the Austrian rules is as follows:

[&]quot;51. Am Ende einer jeden Clockrunde teilt der Auktionator jedem Bieter die folgenden Informationen mit:

a) für jede Region, ob ein Nachfrageüberschuss von besteht, und falls dies der Fall ist, ob die Überschussnachfrage weniger als fünf Frequenzblöcke ausmacht, zwischen fünf und zehn Frequenzblöcken liegt, oder es sich um einen Nachfrageüberschuss von mehr als zehn Blöcken handelt;

b) falls es in der Region einen Angebotsüberschuss gibt, den Umfang dieses Angebotsüberschusses;"

publishes aggregate demand in full each round and use modest bid increments, so as to reduce risk of poor demand and price discovery leading to overshoot.

We do not necessarily disagree with (and indeed may not have fully understood) ComCom's approach to exit bids. Nevertheless, we request that ComCom evaluates potential alternatives, such as retaining exit bids for longer if prices in a band do not increase, or perhaps retaining all exit bids but making take up of exit bids optional. In such cases, it would also be helpful if bidders could be informed in each round whether they have retained exit bids.

We note that RTR, which proposes to use a similar format to ComCom for its award of 3.4 to 3.8 GHz spectrum, will allow bidders to explicitly choose to extend the validity of their exit bids. If a bidder submits one or more exit bids in a region and the price in that region does not increase, the bidder can explicitly extend the validity of all of his exit bids⁴. We ask that ComCom considers adopting this modification. It appears that this rule may reduce the risk of there being unsold spectrum at the end of the clock rounds as bidders can opt to extend their exit bids while at the same allowing bidders to control their exposure to winning spectrum they may no longer want given changes in their demand in response to price increases in the auction.

Pricing rule / allocation of unsold lots at the end of the clock rounds

There appear to be no activity restrictions on exit bids other than the number of lots included in your exit bid for a particular category cannot exceed your demand in the previous round and cannot be lower than your demand in the current round. This means that if you reduce demand in two categories and increase demand in a third, but total activity is less than your eligibility, you can submit exit bids for the first two categories that in total EXCEED the bidding points you dropped in that round.

It is not fully clear to us how prices and allocation would be determined if the auction ended in such a situation:

- 1. The rules imply that ComCom will respect clock round demand, but they do not state this explicitly. The examples at the end show that a bidder will indeed either win its clock round bid in a category or one of its exit bids. He cannot get "knocked out" by an exit bid for a large number of otherwise unsold blocks.
- 2. The activity requirement can only be satisfied if ComCom optimises jointly over all categories with unsold lots. As the sum of bidding points included in all your exit bids may exceed your eligibility, we suppose ComCom may need to decide in which category a

⁴ The relevant passage in the Austrian rules is as follows:

[&]quot;37. Exit-Gebote in einer Region können vom Bieter verlängert werden, solange

a) der Clockpreis in dieser Region im weiteren Auktionsverlauf nicht ansteigt; und

b) der Bieter seine Nachfrage in dieser Region nicht weiter reduziert.

Kommt es zu einem Preisanstieg in einer Region –und damit zu einem Nachfrageüberschuss auf der Basis von Clockgeboten – dann erlöschen alle für diese Region platzierten Exit-Gebote. Gleichfalls erlöschen alle Exit-Gebote eines Bieters in einer Region, in der dieser seine Nachfrage weiter reduziert.

^{38.} Verlängerung der Exit-Gebote erfordert eine explizite Entscheidung des Bieters und erfolgt nicht automatisch. Zur Klarstellung: Exit-Gebote können nicht abgeändert werden, und können innerhalb einer Region nicht selektiv verlängert werden (d.h. hat ein Bieter in einer Region die Nachfrage in einer Runde um mehr als einen Block reduziert, und daraufhin mehrere Exit-Gebote gelegt, so können diese nur in ihrer Gesamtheit verlängert werden, nicht aber einzeln)."

- bidder should be allocated exit bids. The examples appear to confirm that this is done jointly across bands.
- 3. The rules say that ComCom would pick the revenue-maximising combination. This is indeed what you do in the examples. ComCom selects the combination of exit bids that maximises revenues over all categories. This approach, however, prioritises revenues over value maximisation for bidders as it values unsold lots at the reserve price. Given that revenue-maximisation is not an objective for ComCom, but efficiency is, we request that you consider if there is a case for identifying the "value-maximising combination" across all categories instead of revenue maximisation (i.e. prioritise allocation of blocks over retention of blocks based on their reserve value).

We note that RTR has decided to allocate exit bids in a way that maximises total value rather than revenues. This is line with RTR's general objective of achieving an efficient allocation (rather than maximising revenues) and we strongly urge ComCom to adopt the same principle.⁵

Further, RTR proposes to run a sealed bid round for unsold blocks at the end of the clock rounds. Bids are submitted on a per block basis (i.e. a price per generic block). Bids in each region are ordered by amount and then allocated in descending order (subject to prevailing spectrum caps – RTR may decide to loosen caps for this round). Ties are broken first by the amount of spectrum already won in the region (bidders with fewer blocks are preferred) and then random. Winners pay their bid. Such a procedure may also be appropriate in Switzerland.

Switching rule

A key feature of the proposed clock auction is that bidders have the ability to switch demand across categories in response to changes in relative prices. Our interpretation of the rules is that there should be no restrictions on such switching. For example, we would suppose that a bidder that bid, say, for one SDL category, would be free to switch to bidding to the other SDL category, regardless of whether they were previously active in the other SDL category.

However, the second sentence of paragraph 3.5.3 appears to contradict our interpretation: "Es bedeutet auch, dass ein Bieter, der ein Nullgebot (in einer Kategorie) abgegeben hat, im weiteren Verlauf der Clockphase keine Gebote (in derselben Kategorie) mehr abgeben kann." Please can you clarify this rule and confirm whether you are proposing any restrictions on switching between bands. For the avoidance of doubt, we cannot see any reason why switching should be restricted.

d. Eligibility points

We need more time to review the proposed weightings to be applied to each spectrum band in the auction. Given that all the bands are complements and substitutes to varying extent, it is of critical importance that the weightings make it reasonably easy for bidders to switch demand between bands in response to changes in relative prices. The proposed eligibility point structure,

⁵ The relevant passage in the Austrian rules is as follows:

[&]quot;Könnten Exit-Gebote unterschiedlicher Bieter zum Zug kommen, oder gibt es für einen Bieter mehrere Kombinationen von Exit-Geboten, die potenziell zum Zuge kommen könnten identifiziert der Auktionator diejenige Kombination von Exit-Geboten die den größten Gesamtwert erzeugt. Gibt es mehrere Kombinationen mit dem gleichen größten Gesamtwert, dann entscheidet das Los."

of 1 or 2 points for all available lots, does potentially achieve this goal. At the same time, weightings should also reflect value differences between bands, so as to avoid introducing strategic incentives for bidders to diverge from straightforward valuation-based bidding. We are still reviewing this second aspect.

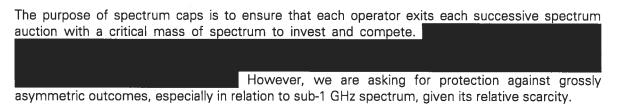
(3) Spectrum Caps

The forthcoming awards of 700 MHz, 1400 MHz and 3.4-3.8 GHz will determine the competitive landscape for 5G provision but also 4G evolution in Switzerland for the next decade. The key dynamic going into the award is the current asymmetric market situation.

ComCom's number one priority must be to preserve the three-player market by ensuring all operators exit the auction with a critical mass of spectrum at an affordable price level, so as to enable them all to invest and compete in providing 5G services.

Given the market asymmetry, ComCom cannot simply rely on the market to deliver an efficient outcome. Without appropriate pro-competitive constraints, there is a high risk that (i) larger bidders acquire more spectrum than needed because their values for incremental spectrum are inflated by option value and/or anticipated commercial benefits from constraining competitors; and (ii) smaller bidders acquire too little spectrum because they cannot afford high prices resulting from bidding competition with stronger players that are bidding on the basis of inflated valuations.

With appropriate spectrum caps, ComCom has to ensure at least three operators can secure a critical mass of spectrum for 4G and 5G. Our view is that the current measures, although a step in the right direction, do not go far enough.



700 MHz FDD

Each operator requires a critical mass of sub-1 GHz spectrum for 4G and 5G coverage to be addressed through a cap on 700 MHz:





In consequence, the proposed spectrum cap of 2 x 15 MHz is insufficient to protect Swiss society against an outcome that could jeopardize the sustainability of three mobile operators. The simplest way to achieve ComCom's competition goal would be a 2 x 35 MHz cap on sub-1 GHz FDD spectrum. Please note that Salt is not seeking and does not require any protection from a fourth bidder. In order to have a reasonable level of competition among the three operators in terms of 5G services, it is crucial that all have roughly the same amount of bandwidth in the low band frequencies. Hence, the existing imbalance resulting from the 2012 auction with regards to the allocation of low band frequencies must under no circumstances be amplified further with the planned allocation.



3.4 - 3.8 GHz

The 5G capacity requirement should be addressed through an appropriate cap on 3.4 - 3.8 GHz. The 3.4 - 3.8 GHz band has been identified as the pioneer band for urban 5G deployment, owing to potential to deploy large blocks of spectrum.



Consequently, the best way to ensure competitive 5G provision is to set the caps in a way that ensure that no two operators could prevent a third operator from securing at least 80 MHz. Given the large volume of available spectrum in this band, this goal can easily be achieved without unduly constraining any operator.

Also we would like to remind ComCom that Swisscom has already some very valuable TDD spectrum in high-frequencies bands (2600 MHz) and caps for 3.4 GHz should be set accordingly.

 $^{^{6}}$ We note that the 900MHz band has been included by 3GPP as a 4G NR band (Band n8).

Hence we urge ComCom to lower the unreasonably high spectrum cap of 140 MHz to 110 MHz or 120 MHz.

(4) Reserve prices

The decision of the Council of States not to increase NIS thresholds hinders the implementation of 5G in Switzerland. The consequence of current tight emission limits continue to apply also in the future is that the deployment of additional spectrum bands by mobile operators is severely limited, as the emissions budgets are already used up by existing spectrum deployments. The deployment of additional spectrum bands under current thresholds will require a substantial increase in the number of base station sites, which is not feasible owing to a range of constraints (long permitting process, strong opposition, inflated rent expectations, etc.). The consequence is that additional spectrum is effectively useless under the current regulations.

Hence we urge ComCom to substantially reduce the reserve prices across all frequency bands.

700 MHz SDL and 1400 MHz SDL

ComCom has proposed the same reserve price for all of the lots within these two bands - CHF 4.2m per 5MHz lot. Notably, this is equal to 50% of the reserve price for the 700MHz FDD band on a per MHz basis, despite the huge differences in the characteristics and value of the spectrum within these two bands. Notably, the device ecosystem for the 700MHz SDL band and the 1400MHz outer band (1427-1452 MHz and 1492-1517MHz) is highly uncertain. If included in the upcoming auction in Switzerland, this will be the first instance of these bands being auctioned globally. Further, apart from the UK (700 MHz SDL in c.2020) we are not aware of any other country (in Europe or elsewhere) having concrete plans to award these bands in the foreseeable future (i.e. in the next three years).

Hence, we believe that the proposed reserve price for these two bands is too high. A discount of 50% (on a per MHz basis) to the 700MHz FDD band – which has an established global device ecosystem – does not reflect the risk associated with acquiring this spectrum. Overly high reserve prices introduce a substantial risk that at least some of this spectrum is left unsold.

Consequently, we recommend that the reserve prices of 700 MHz SDL and 1400MHz SDL bands are lowered by at least a factor of two, i.e. reduced to 25% of the 700MHz FDD price.

2600MHz band (2×5MHz)

The maximum LTE carrier size is 2x20MHz. Salt, Swisscom and Sunrise all have at least this quantity of spectrum in the 2600MHz band. Therefore, there is minimal benefit to any of the operators acquiring the 2x5MHz lot available in this band in the auction. Therefore, we consider the reserve prices of CHF 5.8m/lot as too high and urge ComCom to reduce the reserve price. If the reserve price is not reduced, we believe that there is a strong chance that the lot will remain unsold, which would not maximize the efficient use of the band.

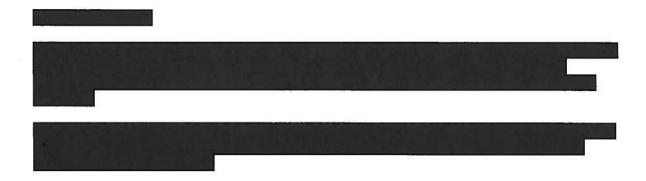
3.4 - 3.8 GHz band

There is a total of 300 MHz available for mobile usage. Some of this spectrum (3642-3678MHz, 3709-3791MHz and 3660MHz) is characterized by strong restrictions regarding the coordination of 5G with the existing systems operating in the 3400-3800MHz band.

To complete the assessment of the quality of the frequency band, it is mandatory to get prior to the auctions all the technical information that were used to produce the map of the impacted area, including propagation models, antennas used, maximum interference that can be allowed by the system in the impacted areas, etc.

It is also mandatory to clarify in the auction document the precise zone where the limitation would apply and the aggregated maximum applied field strength of mobile radio base stations at the antennas of the ground stations.

Hence the proposed reserve prices of CHF 1.68 m / lot for those 120 MHz shall be lowered consequently.



(6) Comments on Assignment Round Rules

Salt supports the use of a sealed bid assignment round with second pricing and a guarantee of contiguous spectrum within each bands. This approach will be familiar to all bidders and has been widely used by regulators across Europe. We strongly support this two stage approach of first allocating generic lots and then providing a guarantee of contiguity in assigning specific frequency blocks.

Notwithstanding our general support, we have some uncertainty regarding the approach to 1400 MHz. We note that the guarantee of contiguity has significant implications for potential assignment outcomes in the 1400 SDL band, as it will constrain the extent to which bid options include parts of the more valuable central 40 MHz. Salt is still evaluating this issue. We reserve the right to make further comments on this issue, and would certainly want to respond to any rule changes regarding assignment of this band.

It occurred to us that, as an alternative to the current proposals, ComCom could adopt an alternative approach to packaging SDL spectrum that takes into account the different characteristics of the bands in the allocation and assignment round, as follows:

Three categories of SDL:

- 700 MHz SDL: 1 block of 15 MHz (2 pts)
- 1400 MHz core: 2 blocks of 20 MHz (2 pts each)
- 1400 MHz SDL periphery: 2 blocks of 25 MHz (2 pts each)

SDL spectrum caps:

- Cap of 2 SDL blocks per bidder
- Cap of 1 block per bidder for 1400 MHz core

Contiguity rule:

 A bidder that buys 1 block in each of the 2 SDL categories is guaranteed contiguity in assignment round

We can see advantages and disadvantages to this approach and wonder whether it has been evaluated by ComCom?

Salt is encouraged by the many positive new features of ComCom's proposal for this important award. However, key issues remain to be resolved, including ones that could have a critical impact on downstream competition.

A wrong decision as regards the rules of the upcoming award could severely impede or even destroy competition for decades to the detriment of small participants

We trust that ComCom will adequately take into account our considerations and remain at your disposal in case of any question.

Sincerely,

Marcel Huber

Chief of Corporate Affairs & General Counsel