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Dear John,

Consultation on spectrum pricing for terrestrial broadcasting

Telefónica welcomes this opportunity to respond to Ofcom's recent consultation. In this response we confine ourselves to one issue of analysis we have uncovered whilst evaluating Ofcom's approach to spectrum pricing for terrestrial broadcasting.

In the analysis Ofcom concludes that the opportunity cost of using the 700MHz spectrum for mobile broadband is c. £1.6m/MHz/annum¹. Whilst, no doubt, the opportunity cost of mobile broadband use is higher than the opportunity cost for further broadcasting² we have concerns over fundamental errors in the methodology used by Analysys Mason.

Specifically, we have identified sensitivities in the modelling to assumptions made about the "*importance of low frequency spectrum*" at p.83 of Analysys Mason's report.

Those familiar with the topic will recall that many important policy proposals have been made in the past regarding sub-1GHz spectrum (2G liberalisation in 2007 and 2009, Ofcom's auction proposals in 2006, 2011 and 2012). In the end, each of these consultation processes has had to conclude that the benefits of sub-1GHz spectrum are marginal³.

"the extent of the improved quality of coverage is relatively small. The extent of this advantage will be dependent on the construction of buildings and the location of the user within the building. Little or no advantage would exist in many easier to serve indoor locations."

¹ Analysys Mason report p.11, Figure 1.7

² Ofcom's analysis suggests that mobile broadband is perhaps 3x more valuable.

³ <http://stakeholders.ofcom.org.uk/binaries/consultations/spectrumlib/annexes/government-advice.pdf> para 1.12

Ofcom's Advice to Government on 2G liberalisation, 25 October 2010 – following two consultations and three years of analysis.

Telefónica were therefore surprised, again, to see another document present sub-1GHz spectrum as having superior qualities to other spectrum, in the context of capacity constrained urban networks. In its report Analysys Mason asserts that deploying 700MHz on existing network grids will increase network coverage and mean that an additional 30% of traffic previously out of reach to supra-1GHz spectrum would be carried on the 700MHz layer. This assumption is clearly misguided.

Ofcom's previous analysis showed that existing networks are now capacity limited, not coverage limited. Adding another spectrum layer increases the amount of traffic that can be carried, but not the effective size of the cell in areas where cell grids are dense.

Furthermore, Analysys Mason's assumptions imply that MNOs do not undertake simple traffic management in their networks to improve performance for all users (not just those on 700MHz compliant devices). In its model Analysys Mason assumes that only 700MHz compliant devices will benefit from the deployment of 700MHz in networks.

In reality MNOs will manage networks in a way that delivers benefits for all users. In this instance, 700MHz compliant devices would be forced into the 700MHz layer, thereby removing their traffic from other layers and improving speeds for all users.

Correcting for these two issues allows us to conclude that the calculation of opportunity costs relates to areas of capacity constraint, not coverage limitation. It follows, that the carrier frequency of spectrum is not a relevant consideration in the calculation of opportunity cost. In light of this, we would expect incremental spectrum to increase capacity pro-rata to the amount of existing spectrum deployed, whether sub-1GHz or supra-1GHz.

We highlighted these issues to Ofcom on 14th March. Ofcom provided Telefónica with a locked copy of the Analysys Mason model on 22nd March.

Ofcom was unable, or unwilling, to supply a model that could be adapted by Telefónica to correct for this and other observed errors/anomalies in the data.

However, following further correspondence, Ofcom stated that:

"the Anaylsys Mason work was published within the current consultation primarily to assist broadcasters by providing an indication of possible future levels of AIP when it is finally introduced (i.e. after progress on the implementation of our UHF Strategy). The model should therefore be regarded as indicative only – as was made clear in the accompanying text. Importantly, this initial analysis of possible AIP levels does not affect the underlying proposed policy position on which we are consulting – namely, that AIP is not introduced for broadcasting use of spectrum at this stage."

"We will consult more fully on the actual level of AIP and the manner of its introduction before AIP is applied. We will, of course, take into account all relevant factors at that time in our subsequent modelling."

We trust that Ofcom will update its approach to opportunity cost modelling, in particular the treatment of coverage and capacity spectrum in deployed network grids, before it consults on spectrum pricing for mobile later this year.

Yours sincerely

Telefónica UK Limited