DotEcon's assessment of responses to ComReg Document 17/19

August 2017

Introduction

As ComReg's expert economic adviser, in this document we set out its understanding and assessment of the responses received to ComReg consultation Document 17/19 that relate to the proposed fee structure to be charged for operating a CGC network in Ireland.

This document does not deal with responses relating to other aspects of the CGC authorisation regime, which are covered by ComReg in a separate document.

1 EchoStar Mobile Limited

EchoStar Mobile Limited (EML) believes that the approach to setting CGC fees based on opportunity cost will "*discourage the 2 GHz licensees from rolling out innovative new services to the benefit of Irish consumers and businesses*".[1] Instead, EML suggests that it would be more appropriate to set fees using an approach that reflects the administrative costs of licencing.

EML believes that the CGC fees should be set taking account of the high upfront costs and ongoing financial risk faced by 2 GHz MSS licensees, as well as the need for flexibility to accommodate a range of applications (whether aeronautical or terrestrial) such that no service solution is disadvantaged economically. EML highlights its view that any regulatory intervention should be such that it encourages the efficient use of spectrum, and its belief that the

[1] EchoStar Mobile Limited, 2017, 'EchoStar Mobile Response to ComReg MSS CGC Consultation ref 1719', p 1.

approach of using opportunity-cost pricing will act as a disincentive to investment and prevent the efficient rollout of CGC networks.

EML offers comments on a number of ComReg's observations in relation to the proposed pricing structure, to support its argument that the use of opportunity cost is a flawed approach:

- Taking account of longer-run opportunity cost and avoiding potential competitive distortions in the mobile markets presumes that the services deployed using MSS with CGC will be comparable in scale and value with existing mobile services, but the CGC is intended to be integral to the MMS service.
- Accounting for long-run efficiency considerations (to encourage efficient use and ensure effective spectrum management) implies that spectrum will only be efficiently used if deployed for terrestrial mobile.
- Setting the fees conservatively (towards the lower end of the range determined by other Member States) does not mean that MSS licensees will not be discouraged from rolling out CGC based services.
- Creating greater predictability over pricing mechanisms for similar bands in the future should not be a justification for using a flawed approach.
- ComReg observes that the proposed fee structure would help to prevent anticompetitive effects arising in the market, but the CGC component is not comparable to terrestrial mobile services and should not be considered a direct competitor. ComReg seems focused on avoiding the case for adjusting the existing regulatory framework and charging principles that apply to the mobile market rather than nurturing the introduction of a new service.
- DotEcon's advice notes that the approach is intended to prevent unfair competition with terrestrial mobile services, implying that ComReg's objective is to discourage any impact on the existing regulatory regime.

On the basis of these points, EML further concludes that ComReg "*has sought to address the issue by seeking to avoid any risk of distortion to the existing regulatory framework as it applies to terrestrial mobile services*", and considers that the proposed approach would "*impose significant regulatory fees on the CGC portion of*

MSS/CGC and be a disincentive to investment in Ireland".[2] EML believes a framework that recognises the innovative infrastructure and services that could be offered with MSS with CGC and the associated competitive benefits would be more appropriate, and encourages ComReg to adopt an administrative pricing model reflecting the cost of regulation.

1.1 DotEcon analysis

We first note that EML has not commented on the structure of the proposed CGC fees i.e. the approach to setting a per-site fee. We understand on that basis that EML's objections are in relation only to the level of the fees. However, EML provides no concrete evidence to support its claims that the proposed fees are too high and would unduly discourage CGC rollout, or of what would be a more appropriate fee level (other than that it should be reflective of administrative costs).

Integral nature of CGC services

We note EML's points, but consider that a number of these are not relevant to the question of spectrum fees for the CGC component. CGC is clearly integral to the MSS service as EML points out, but it is still relevant to ask what hypothetical alternative use can be made of the spectrum in the long-run to ensure broadly consistent application of ComReg's general framework for spectrum pricing. The fact that the MSS licences exist already due to the actions of the EC and alternative short-run uses of this spectrum are precluded does not automatically mean that pricing should be based on the short-run opportunity cost (which is zero).

Roll-out incentives are subject to trade-offs

When providing recommendations on the appropriate fees, we have clearly acknowledged the need to set fees in a way that recognises the wide range of applications that might be provided with a MSS/CGC system and supports the efficient use of the spectrum through CGC deployment. We recognise that there are significant upfront costs to deploying the MSS network as well as uncertainties around the services that might be provided. Clearly, in the context of the administrative assignment of pan-European MSS licences by the

[2] EchoStar Mobile Limited, 2017, 'EchoStar Mobile Response to ComReg MSS CGC Consultation ref 1719', p 4.

EC and the decision of ComReg to charge on a per-site basis, the greatest incentives for CGC deployment are created through setting zero fees.

Any positive level of per-site fee may entail some discouragement of deployment at the margin. However, the relevant question is whether there is *undue* discouragement of deployment given the general benefits of opportunity-cost based pricing in discouraging *inefficient* use of spectrum.[3]

As discussed in our report (ComReg Document 17/19a), there is a trade-off between encouraging CGC rollout and limiting the scope for unfair competition at the margin with terrestrial mobile services. This does not, as EML claims, presume that the services offered using MSS/CGC would necessarily be directly comparable to terrestrial mobile, but accounts for the *possibility* that a MSS licensee could use the spectrum to provide a differentiated service that competes with mobile operators at the margin.

We disagree with EML's point – as we understand it – that because any MSS provider would presumably not deploy services that compete at the margin with mobile services in Ireland alone (but would rather set a pan-European strategy due to scope economies), it is then not appropriate to take into account such hypothetical competition concerns when determining an appropriate price for the CGC component in Ireland. Clearly there are a variety of practical impediments that would make deployment of a service over CGC that competes at the margin with mobile services difficult, as we recognised in our initial report, but this possibility remains. For this reason, the proposed pricing for the CGC does not prioritise the avoidance of competitive distortions, but rather trades off various competing considerations; the proposed prices are set well below a reasonable central estimate of the long-run opportunity cost using the spectrum.

For these reasons, we have recommended a fee structure that seeks to maximise roll-out incentives without favouring MSS licensees in a

[3] We note that ComReg Document 17/19 (p 39) states "*Option2…sets the fees conservatively that are reflective of opportunity cost to ensure MSS licensees are not discouraged from rolling out services*". Of course setting opportunity cost prices (even if conservative) does not *guarantee* operators are not discouraged from deploying CGCs, and we consider it unlikely that ComReg's intention was to convey that message. A more appropriate phrasing would be to say that Option 2 sets the fees conservatively to ensure MSS licensees are not *unduly* discouraged from rolling out services.

way that would allow them to compete unfairly on the mobile services market. Our previous advice, and implementation of the same by ComReg, recognised that roll-out incentives are relevant, but this issue needs to be balanced against other considerations such as the impact on competition.

Hypothetical competitive distortions are not the only reason to use long-run opportunity cost pricing

We also note that the avoidance of competitive distortions is not the only reason why pricing in line with opportunity cost is desirable.

As set out in our report, opportunity cost pricing, if applied (as much as possible) consistently across bands, is supportive of efficient spectrum use and effective spectrum management. Although the spectrum is assigned solely for MSS for the duration of the licences (and we can therefore expect little impact of CGC fees on efficient use in the short-run), opportunity cost pricing offers potential benefits in relation to long-term spectrum policy objectives (discussed in greater detail in our report) that should not be ignored:

- A predictable regulatory framework that sets prices based on opportunity cost provides long-run pricing signals that encourage efficient decision-making about spectrum use and associated investments in network equipment. In the longer run licences will expire and its use will be re-determined; efficient assignment of the spectrum at that point requires the user to face the opportunity cost created by its use. Furthermore, to the extent that current MSS licensees make investment or take actions that stake some implicit future claim over the spectrum beyond the term of the licence, there is a strong argument that they should face the opportunity cost of using the spectrum now.
- Opportunity cost pricing is in line with ComReg's typical approach to setting charges for spectrum licences and ensures equality of treatment with other spectrum in Ireland; keeping to that policy avoids setting a precedent that encourages future requests for special treatment of particular bands.

Mobile use and long-run opportunity cost

Taking into account considerations over long-term efficiency of spectrum use does not, as claimed by EML, imply that spectrum will only be efficiently used if deployed for terrestrial mobile. It simply recognises that, at the point of licence expiry (when the spectrum may be reassigned by ComReg), a possible alternative use of the spectrum is for mobile network capacity or fixed wireless services. If MSS/CGC services (which may well represent the most efficient use) are likely to lay a future claim on the spectrum, then expectations over the application of opportunity cost pricing at the point of

licence expiry provides appropriate incentives to use the 2 GHz spectrum efficiently or to look for alternatives.

ComReg's statutory functions and objectives are not limited to the short term or to a particular technology/service, and it is important to consider its ability to carry out efficient and effective spectrum management in the long-run. A predictable regulatory structure is supportive of creating and maintaining long-run expectations and incentives for all spectrum users, which in turn helps to promote efficient spectrum use. While this should not be a justification for using a flawed approach to setting fees, as EML mentions, we maintain that the approach previously recommended, and adopted by ComReg, is appropriate (for reasons set out in this document and our original report). Therefore the benefits of greater predictability over pricing mechanisms remain a relevant consideration.

Excessive focus on regulatory approach for mobile spectrum

EML suggests that ComReg's approach is focused on avoiding the need to deviate from the regulatory framework currently applied to terrestrial mobile spectrum. In this regard, we note that there are a number of benefits to maintaining a consistent regulatory approach to the licencing of spectrum across similar bands, for example managing long-run expectations over pricing, avoiding unnecessary precedent for special treatment requests in the future, and fairness to users of similar frequencies. As discussed in our report, "*[c]arving out particular spectrum bands or licences for exceptional treatment undermines the benefits of a consistent and predictable regulatory approach to spectrum pricing*", and we consider that any deviation from ComReg's standard approach to licencing should be justified by there being a sufficient benefit.

Therefore, we do not agree with EML that the proposals demonstrate a focus on consistency with the "*existing regulatory framework and charging principles that apply to the mobile service*".[4] Rather the proposals have sought to apply consistently the broad approach that ComReg has sought to take to spectrum assignment in general, which applies to all types of use.

Taking account of the specific circumstances of 2 GHz MSS

We note that, in relation to the proposals for CGC fees, ComReg has indeed taken account of the specific circumstances around the

[4] EchoStar Mobile Limited, 2017, 'EchoStar Mobile Response to ComReg MSS CGC Consultation ref 1719', p 4.

potential use of MSS/CGC in both Ireland and Europe, for example by setting conservative per-site fees[5] to support the deployment of networks of different scales, and in recognition of high upfront costs and uncertainties over the value of services to be provided. We believe that this approach should form a suitable balance between encouraging CGC rollout, providing long-run incentives for efficient spectrum use, and avoiding the scope for unfair competition with mobile services. We do not see, and have not been provided with evidence of, any good reason for ComReg to deviate further from its standard approach to the setting of spectrum fees.

2 eir

In its consultation response[6], Eircom Limited (eir) supports the proposal to set prices based on opportunity cost, but considers that the benchmarking values need to be reviewed "*in light of recent developments in spectrum assignment and associated valuations*". eir highlights that the benchmarking exercise fails to make provision for the 3.6 GHz award in Ireland despite (at the time) its imminence. eir considers the 3.6 GHz award to be "*the most recent and pertinent comparator*" for providing an indication of the value of the MSS spectrum, and urges ComReg to review the benchmarks relative to the ratio of the final price to the reserve price for that award.

eir also states that the benchmarking exercise fails to take account of the proximity of the MSS spectrum to the UMTS bands, which adds value to the MSS spectrum.

Regarding the structure of the CGC fees, eir believes that there should be a weighting applied such that sites in urban areas are priced above the average and sites in rural areas are cheaper, reflecting the value difference of deploying in different regions. eir considers that a uniform price per-site across Ireland would not effectively prevent unfair deployment by MSS operators in urban areas whilst encouraging rollout of CGCs in rural areas (where the social benefits of MSS/CGC services are most likely to be realised).

[5] Setting a fee per CGC means that the charges faced by MSS/CGC operators are directly related to the size and scope of the network deployed, accounting for a wide variety of potential services, rather than prohibiting the deployment of smaller scale applications through a (higher) "one-fee-fits-all" approach.

[6] eircom Group, 2017, 'eircom Group response to ComReg Consultation Paper 17/19'.

eir also believes that this would provide appropriate pricing signals to MSS providers.

eir believes that higher urban prices would not discourage the rollout of CGCs for providing additional capacity for a hybrid mobile broadband service to aircraft as it would not require a large number of sites.

2.1 DotEcon analysis

Relevance of the 3.6 GHz award

Regarding the inclusion of the Irish 3.6 GHz award in the analysis of suitable CGC prices, we first note that we considered including the 3.4 –3.8 GHz band in the benchmarking but, for the reasons set out in ComReg Document 17/19a (p 19), concluded that it would be prudent not to given the uncertainty over the extent to which the 3.6 GHz benchmarks would reflect the value of the spectrum for mobile use. Furthermore, at the time of preparing and publishing the original report, the 3.6 GHz award in Ireland had not concluded and no pricing data was available. Therefore it was not possible to take that particular award into account. ComReg has since published the results of the 3.6 GHz auction,[7] but these do not provide us with any good reason to revise our recommendations.

The full 350 MHz of the available 3.6 GHz spectrum in each of the nine regions was allocated between five winning bidders, for a total price of approximately €78m including upfront fees (SAFs) established in the auction and spectrum usage fees (SUFs) paid annually for the duration of the licence. This translates into a price of €0.044 per MHz per pop. for the 15-year licences awarded.[8]

Converting the prices achieved in the 3.6 GHz award into a value that can be compared with the proposed CGC fees[9] gives a price point of €0.035. We note that this is significantly below the proposed price level for CGC fees of €0.25, which we considered appropriate given the proximity of the spectrum to the 2100 MHz band (for which we

[7] See ComReg Document 17/38

[8] With SUFs discounted using a rate of 8.63% (as in the benchmarking exercise for the 3.6 GHz minimum price proposals).

[9] With SUFs discounted using a rate of 9% and normalized to represent the equivalent for a 10-year licence (as in the CGC benchmarking exercise).

estimate the value to be ~€0.35) and the need to set prices conservatively.

The price point of €0.044 achieved for the 3.6 GHz spectrum is significantly higher than the minimum prices set for the award (€0.010 in rural areas and €0.015 in the cities). This is because the minimum prices were set at a level expected to be significantly below the value of the spectrum (but not so low as to create incentives for speculative or strategic bidding) to avoid choking off demand and allowing market mechanisms to determine the true value of the spectrum.

Setting fees involved different consideration to setting reserve prices

Setting of the CGC fees relative to the benchmarks is not, however, analogous to the setting of reserve prices for an auction. Whilst the approach was similarly based on a conservative estimate of the value, based on a benchmarking exercise, the level of the proposed CGC fees relative to the estimate value of the spectrum takes account of different considerations. We are not setting an initial lower bound on prices that will be increased by subsequent competition within an auction, but rather establishing the actual prices to be charged that need to account for incentives for CGC rollout and the theoretical potential for unfair competition within the mobile market. We therefore do not consider that the ratio of the final price to the reserve price for the 3.6 GHz award has any particularly relevant insight into the suitability of the level of proposed CGC prices.

Urban/rural differentiation of CGC fees

Throughout our analysis and recommendations we have stressed the importance of accounting for the uncertainty around the value and scale of the services that can be offered with MSS with CGC, and the need to set fees sufficiently low so as to avoid discouraging CGC rollout given the variety of different ways in which this spectrum might be used. We consider that the fee level proposed is sufficiently low so as to achieve this in both rural and urban areas of Ireland. We also highlight the need to set fees sufficiently high so as to avoid creating a back door entry to unfair competition at the margin with mobile operators. Whilst it would not be appropriate in this instance to charge the full estimated market value for the spectrum (due to the likely adverse impact on deployment incentives given the decisions already taken by the European Commission), we consider that the proposed fees are high enough to prevent a MSS operator from deploying the number of sites likely required to compete with mobile without paying fees approaching opportunity cost, and we believe this to be the case for both urban and rural areas.

We recognise that there may in practice be different value associated with deployment on rural/urban sites. It is also the case

that differentiating CGC fees by urban and rural areas has the potential to improve the terms of the trade-off between not disincentivising new services (that might be targeted at rural areas) and avoiding unfair competition with existing mobile services (which might be targeted primarily at urban areas); this is acknowledged in our initial report. However, no specific evidence has been provided to suggest that the proposed fees (around the level of the proposed uniform per-site fee) would have adverse effects on either the rollout incentives or the opportunities for unfair competition; therefore, we see little justification for the more complex method of discounting CGC fees in rural areas given the large number of additional parameters that would need to be determined to implement such a scheme.

Proximity to the 2.1 GHz UMTS band

In relation to eir's comment on the benchmarking not accounting for the proximity of the MSS spectrum to the UMTS bands, we emphasise that when establishing our proposed prices we have (as discussed above and in our original report) *explicitly* accounted for the fact that the MSS spectrum is not just close to, but adjacent to the 2100 MHz band, one of the two bands used for UMTS in Ireland.

The CGC price we propose is closer to the estimated value of the 2100 MHz band (which we consider the most directly relevant comparator) than to the value estimates for the majority of the other bands considered. However, we take a conservative approach and set the price point for CGC at a lower level (closer to the 1800 MHz benchmark) to account for the uncertainty over the value of different uses and concerns over deployment incentives.

Although the 3.6 GHz award was the most recent in Ireland (and therefore worth consideration), we disagree with eir that the 3.6 GHz band is the most pertinent comparator, and still consider that 2100 MHz is the most appropriate reference band. In light of this, and the points above, we do not see any reason to change our views on the proposed fees for CGC.

3 Inmarsat, T-Systems Limited, Deutsche Telekom and ViaSat

Inmarsat welcomes the proposed fee per CGC site, placing emphasis on the significant consideration and analysis that has gone into making the proposal.

In particular, Inmarsat notes that the 'per site' approach has the advantage of being a 'single, technology neutral means of determining a fee' that is proportionate to opportunity costs of the MSS with CGC licence holders in comparison to existing MNOs in Ireland. Furthermore Inmarsat agrees that the proposal achieves the

balance between minimising competitive distortions and addressing the concern of discouraging deployment.

Inmarsat considers the proposed fee, based on the benchmarking approach, to be 'minimally balanced and proportionate' when applied to Inmarsat's plan for an EAN system, and stresses that this offering will serve a distinct service from the mass consumer market for mobile. In addition, Inmarsat notes that it could have been taken into consideration that EAN sites will serve a much smaller number of users than a typical MNO site.

Although not commenting on the proposed fees directly, T-Systems deems the ComReg proposals to be 'suitable and well balanced'.

Deutsche Telekom judges the benchmarking approach to setting fees to be appropriate. Moreover, the per-site cost structure is considered to be fair in light of the fact that the EAN will require just a few base stations, and scalable to any kind of service.

ViaSat does not provide comment on the proposed fee level or structure.

3.1 DotEcon analysis

In relation to Inmarsat's comments on the potential for taking into account the number of users served by EAN sites relative to typical MNO sites, we note that (possibly indirectly) this is already the case. The per-site fee is established by dividing a national fee by the number of sites deployed by a typical MNO in Ireland (2,200). In reality we expect that to compete with mobile services at the margin it would not be necessary to deploy so many sites; if a reduced number of sites were used, the per-site fee would therefore be higher than proposed. However we use the greater number of sites to reflect that the value of MSS with CGC services is uncertain and hence might generate lower revenues on a per-site basis than mobile services.