Commission for
Communications Regulation

Submissions to Consultation

Costing of universal service obligations: Principles and Methodologies

Submissions received from respondents

Document No:	**11/15S**
Date:	**7 March, 2011**

Consultation:	**10/94**
Response to Consultation:	**11/15**

An Coimisiún um Rialáil Cumarsáide
Commission for Communications Regulation
Abbey Court Irish Life Centre Lower Abbey Street Dublin 1 Ireland
Telephone +353 1 804 9600 *Fax* +353 1 804 9680 *Email* info@comreg.ie *Web* www.comreg.ie

Contents

1 ALTO

alto

alternative operators in the communications market

Response to Consultation on Costing of Universal Service Obligation – USO: Principles and Methodologies Ref: 10/94

Submission By ALTO

Date: January 20th 2011

ALTO is pleased to respond to the Consultation on Costing of Universal Service Obligation – USO, Principles and Methodologies in Ireland.

ALTO welcomes the opportunity to comment on these proposals from ComReg relating to USO.

Whilst ALTO is supportive, in principle, to the concept of USO, we are concerned over the proposed increased levels of funding from industry to support an incumbent operator which has been starved of funding over recent years. The previous three owners of the incumbent utilised investment and financial leverage principles to erode significantly the residual value of the company. Such action has negatively impacted the standing of the company to the detriment of its employees, its customers (retail and wholesale) and the wider information society in Ireland.

We are deeply critical of former investment management practices at the incumbent and would urge ComReg to take such matters into consideration during their analysis of USO obligations. As the biggest benefactor of any USO finding will be the incumbent, ALTO would oppose any form of excess rent or increased funding which may arise from ComReg's review; on principle ALTO members would categorically reject any attempts to compensate an organization for shortfalls in its financial position which eminate from conscious management decisions.

ALTO reminds ComReg of the annual European Commission Implementation Report studies. All of these studies in recent years has shown Ireland to have the highest line rental prices in the entire EU 27 member state region. Given the population and demographic this type of statistic should be closely analysed and indeed brought into line with accepted norms.

ALTO remarks that anecdotal evidence suggests that components of the line rental basket of costs may include a Fixed to Mobile (subsidy or) component which forms

part of ComReg's calculations in terms of returns to the incumbent. This needs to be assessed and a clear statement made in order for any subsequent USO finding to be legitimized and accepted as being determined on a correct and accurate basis.

General Observations:

ALTO suggests the USO should logically reduce over the coming years and that the areas of and demand for: New Lines; Mobile Phones; Payphones; Phonebooks; National Directory Database – NDD, Access and Disability servi. It is fair to suggest that NDD and Disability Services should be sustained in some fashion.

ALTO considers that benefits gained by eircom in providing the USO far outweigh the cost, particularly as they are entrenched in terms of their dominant positions in both the Retail and Wholesale markets and there is no demonstrable requirement for operators to pay for USO in the past or going forward.

ALTO endorses three principled approaches in terms of this consultation: (1) End-to-End cost valuation, (2) dispensing with 'catch-up' logic in terms of eircom, and (3) bringing forward value for money alternatives/incentives to force the Universal Service Provider – USP, to act efficiently.

End-to-End cost valuation

eircom is a vertically integrated company however it offers services at the access, wholesale and retail layers. eircom achieves a mark-up at each layer and equivalent will exist for the internally traded services. We consider the USO services provided by eircom should be considered as an End-to-End product removing the various mark-ups as these represent pure profit to eircom rather than a financial burden. We believe an end-to-end valuation will demonstrate a

significant reduction in the financial burden on eircom and provide a realistic view of the value of the USO.

“Catch-Up”

The consultation appears to be addressing how to fund eircom to “Catch-Up” with the basic USO compliance requirements. We believe eircom commercially chose through their business decisions the quality of USO services to offer prior to 2008 and such was inefficient, particularly service assurance. We are of the view that if anything eircom should be fined and not compensated for this action. They are responsible for the need to “catch-up” and should pay for such.

Value for Money and alternatives

This consultation should also consider ways to ensure that eircom are meeting their USO obligations in an efficient way, particularly if other parties are obliged to contribute to the USO fund. ALTO considers that there are numerous ways that eircom could reduce the costs and the resultant financial burden for providing USO services. For example, a major efficiency could be achieved by the upgrading and enhancement of the NDD.

We strongly recommend that ComReg should engage expert telecom engineering consultants to evaluate whether eircom is gaining value for money in the provision of the USO as part of the evaluation of the USO burden.

Response to Consultation Questions:

Q. 1. Do you consider this HCA-based approach to be appropriate? Please provide reasons for your view.

A. 1. ALTO agrees with the ComReg proposal for a HCA based approach properly adjusted for efficiencies. We highlight our comments above.

ALTO notes that the modernisation of networks in Ireland has not yet impacted the traditional eircom PSTN that forms the major part of the USO burden. It would therefore appear beneficial to continue the existing HCA accounting regime for the current review as no upgrade of the PSTN has been indicated within the next two years. Forecasting upon the current trajectory of investment it appears unlikely that substantive investment in the PSTN will occur in the coming years.

The HCA regime is based on historical costs and given that the legacy eircom PSTN platform should now have been written down, the cost of the USO should be lower. We consider that the PSTN should still have several years operating life and it would be more appropriate to move to a current/forward looking methodology in the next review. Going forward we would expect a new telephony platform to be cheaper than its predecessor again reducing the costs.

We agree that the HCA outcome should be adjusted for efficiencies where appropriate.

Q. 2. How in your view, should capital expenditure invested by the USP in the past, in respect of potentially uneconomic USO elements/services, be treated for the purposes of a correct identification of the avoidable costs in the net cost calculation? What, in your view, are the appropriate principles for cost recovery in this regard?

A. 2. We agree that fixed, joint and common costs for the access and core networks should not be included as avoidable costs as such would be incurred in

providing commercial services and the USO obligation would be an incremental cost to these. Taking the above view historical capital expenditure for the access and core networks should not be included as avoidable costs.

With regards to investments such as the NDD it should be clarified that eircom simply run a database and that every operator provides the updated information not just eircom. We do not believe that any significant cost has been spent on this system in several years given its inflexibility and the reluctance of eircom to introduce a more modern approach several years ago when X-directory numbers were added.

Services additional to the USO

We note that ComReg highlight in clause 3.11 that eircom are providing additional services to their USO obligations. They cannot be assessed under the USO costs as eircom will no doubt have made a commercial decision to provide such additional services (whatever they maybe) and would therefore expect to profit from them.

Q. 3. Do you agree or disagree with the approach proposed above? Please provide reasons for your view.

A. 3. We understand that the example of leased lines is being used to highlight the principle and agree that all revenues should be associated with the uneconomic end of the circuit on the basis that if it were not provided no revenue would be generated. ALTO suggests that ComReg analyse the potential efficiencies that could be derived from eircom's new or upgraded backbone rather than relying upon older point-to-point connectivity and logic models.

Q. 4. Do you consider the issue of replacement calls to be a material issue? If so,

please explain your reasoning. What measurement / methodology do you consider appropriate that would provide a fair reflective measure of such revenues? Please provide reasons for your view.

A. 4. We agree that ComReg should factor in the replacement calls as revenue earned as the customer clearly has a desire to make calls and would have used the service if it had been provided. Estimation of such is clearly difficult and the possible methodologies would be to survey a sample of customers or to quantify the level of calls from a sample of cells where the situation exists.

Q. 5. Are there other revenues related to the “non-viable” customers lines, not mentioned above (either direct or indirect), which you consider relevant and that should be included in the net cost calculation? If so, please explain and provide examples.

A. 5. We agree that revenues related to “non-viable” customers including calls to low call; revenue share; and premium rate services should be included. In additional where cabinet based broadband is now available to rural areas, there is a compelling case to add broadband revenues. Adding Broadband adds other indirect revenues such as eircom selling broadband ports; backhaul; Internet connectivity etc.

Q. 6. What are your views regarding the potential treatment of “catch-up” investment (which may include CAPEX and OPEX)?

A. 6. Our understanding is that ComReg is asking whether eircom should be compensated for bringing their USO service performance to the basic standard required.

Our strong view is there should be no allocation of investment costs for eircom to “Catch up” to the basic USO standards (See above). Eircom alone make the decisions on whether to invest in their network. If eircom do not manage their network in a fully efficient manner, this is a matter for them. They certainly should

not be compensated for any inefficiency or for a lack in investment. In addition we consider that there is a strong case for imposing penalties on eircom to compensate for the poor repair service they inflicted on the industry and ultimately to end customers prior to the actions of ComReg and the industry some two years ago.

The poor performance of eircom's network, number of faults and time taken to repair them has caused significant additional cost to the industry in the extra resource required and has caused numerous unnecessary problems for end customers, both consumer and business. (See ComReg publication and consultation on KPIs in mid 2010)

We commend ComReg for taking action two years ago to start to monitor eircom's USO performance closely against international standards plus the industry has re-negotiated with eircom improved contractual Service Level Agreements – SLAs, and improvement has been achieved, but in our view it remains at a basic level and is far from best in class.

Setting / Resetting the Line Fault Index

ALTO believes that a Line Fault Index - LFI, figure legally agreed between ComReg and eircom is a step in the right direction but is potentially overly generous to eircom.

Q. 7. What do you consider the most equitable allocation option is for "catch-up" investment? Do you have a preferred or alterative methodology that you wish to propose? If so, please explain in detail your reasoning.

A. 7. See response to question 6. ALTO believes that there should absolutely be no allocation of costs for eircom to "catch-up" to the basic USO standards. The need for eircom to catch up to the basic USO standards was driven by eircom allowing an inefficient service to prevail and eircom should bear the cost of correcting their poor performance, not the industry and not the customer. As stated

above we consider that ComReg should impose a penalty on eircom for its inefficient operation.

Q. 8. What are your views regarding the potential creation of a delayed payment scheme or sinking fund to account for circumstances where the USP is directed to recover the net cost (as appropriate and as determined by ComReg) over a period greater than the remaining duration of the USP designation? Please provide reasons for your view.

A. 8. ALTO believes there are a number of reasons (non-exhaustive) why a USO sinking fund is not relevant to Ireland at this time:

- ALTO do not consider that there is any evidence that eircom's market share will fall significantly in the period covered by this review and we do not perceive that any operator in Ireland has the ubiquity to offer a USO PSTN lines service on a national basis. Hence we cannot see how the USO designation can be removed from eircom in the coming period and the issue of a sinking fund does not arise.
- ALTO believe that ComReg should view the USO burden on an End-to-End cost basis. eircom is a vertically integrated company however it offers services at the access, wholesale and retail layers. eircom achieves a mark-up at each layer and equivalent will exist for the internally traded services. We consider the USO services provided by eircom should be considered as an End-to-End product removing the various mark-up as these are pure profit to eircom rather than a financial burden. We believe such will more realistically identify the actual burden.
- The poor economic environment in Ireland suggests there will be minimal investment in uneconomic PSTN telephone lines over the coming years as new building developments and housing are highly unlikely given the large surplus of empty dwellings and commercial property.
- ALTO expects the cost of uneconomic public payphones to steadily decline as they are gradually removed.
- eircom have not signposted and we do not foresee eircom making any

significant investments in any of the other USO obligations.

- Our view is that the USO quality standards now being set by ComReg bring eircom to the minimum standard (except LFI which is still a poor target) which would be expected of any commercial organisation being paid for communications services, moreover it's the standard that customers expect of all the operators in Ireland. Hence we do not agree that eircom should be funded for meeting the minimum commercial standard acceptable and "catch-up" funding should not be entertained.

Q. 9. What are your views regarding the treatment of uneconomic customers in economic areas and what do you consider to be the most appropriate methodology that could identify the avoidable cost in relation to uneconomic lines in economic areas? Please provide reasoning to support your views.

A. 9. ALTO agrees that the physical layout of eircom's network can help inform ComReg of potential uneconomic areas, however this is not sufficient alone as ComReg should also be considering the demographics of an area. For example, a relatively rural area may be the location for a significant industrial park or a major business site that could have a major influence on the economic viability of the local exchange and access network. Hence our view is that economic areas derived from a network layout test should then be subjected to a demographics test to check for industry in the area.

Uneconomic customers in economic areas.

We agree with ComReg on the list of avoidable costs as exchange switches are designed to share the switching capacity amongst all users hence the capability has to be present irrespective of whether some users were provided uneconomic access. ALTO has been made aware of a government and EU funded initiative in this area.

Q. 10. What is your view with respect to service providers granting a discount to customers who opt-in to an alternative bill format that it offers (e.g. an e-bill)? Please provide reasons to support your view.

A. 10. See question 9.

Q. 11. Do respondents believe each of the benefits listed above are pertinent to the net cost calculation in Ireland? Please provide reasons to support your view.

A. 11. . We agree the key benefits identified in clause 5 are pertinent to the net cost calculation for the reasons provided by ComReg in their analysis.

Q. 12. What method or combination of methods for calculating the individual benefits do respondents consider to be the most appropriate? Please provide reasons to support your view.

A. 12. ALTO considers the financial burden has been significantly overstated and when measured end-to-end will demonstrate the need for a smaller benefit to achieve break even. So per some responses offered to the Call for Input or Preliminary Consultation ALTO agrees that the benefits gained by being a USP do indeed outweigh the costs. We are also of the view that the main operational beneficiary of USO funding and allowances is the incumbent eircom. It may be the case that an assessment of the USP's ability to recover its costs in aggregate having regard to the strength of competition in relevant markets may make sense rather than any other assessment.

Q. 13. What data (and from what sources) will ComReg require to most accurately estimate the benefits? Please provide reasons to support your view.

A. 13. It is likely that ComReg will need to estimate the benefits from all the sources listed at 5.5 on page 35 of the consultation paper. In addition to the items listed in ComReg Consultation 10/77. to the USP. The intangible benefits that may arise for a USP include;

1. Brand Recognition
2. Ubiquity
3. Customer Life Cycle (Churn and wholesale win back)
4. Potential future sales of services
5. Goodwill
6. Marketing
7. Payphone Advertising (To include Wholesale service revenues over PAL)

Given eircom's unique position in the Irish market, ComReg would be well advised to assess the benefits across a defined selection of the above headings. ALTO is strongly supportive of the view that whichever methodology is adopted it must be robust so as to ensure that double accounting cannot feature in such an assessment.

To be clear, ALTO supports the principle that the incumbent is not penalised for meeting its Universal Service Obligations. However, any assessment of the costs incurred should, to some extent, also take account of the balancing benefits that accrue to the incumbent. Whilst difficult to assess, the recognition of the existence of such benefits should ensure that any costing awards should be at the lower end of any cost ranges. Such indirect benefits, unlike the costs of providing such services, do not diminish over time but act to maintain the incumbent's dominant position.

Q. 14. Do you agree with ComReg's view that where a positive net cost is relatively small, ComReg should assess whether or not the costs of establishing and

implementing a sharing mechanism would be disproportionate to the net transfers to the USP to decide on the existence of an unfair burden? Please provide reasons to support your view.

A. 14. We agree with ComReg that where a positive net cost is relatively small ComReg should assess whether or not the costs of establishing and implementing a sharing mechanism would be disproportionate and an unfair burden. The reason is simply the cost to establish and administer such a scheme will add additional cost to both ComReg and the industry and such is unreasonable if the sum to be recovered is small.

Q. 15. Do you agree with ComReg's proposed approach (profitability and competition assessments) to decide on the existence of an unfair burden on a USP?

A. 15. We agree with ComReg's proposed approach (profitability and competition assessments) to decide on the existence of an unfair burden on a USP. We agree with ComReg's proposed Step 2 starting in clause 6.20 to evaluate the profitability and whether the USO is an unfair burden on the USP for the reasons below.

1.To conduct such a check establishes the magnitude and proportion of the USO costs to the USPs overall business and helps assess the overall impact of the USO on the USPs business.

2.This will also supply trend information to indicate over time whether the burden is growing or declining on the USP and thus providing signs such as whether ComReg should consider other options such as advising the USO should be put out to tender etc.

Q. 16. Do you consider that the identified range of profitability and competition criteria is objective and appropriate for assessing the issue of unfair burden? Are there other criteria that should also be considered?

A. 16. An efficiency test should also be included in the assessment of burden.

We consider that in addition to the identified range of profitability and competition it is fundamental to assess whether the USP has gained value for money in providing the USO. We consider that the evaluation should seek to understand whether best practice has been deployed; whether efficient costs have been achieved to reduce the USO burden.

Given the lack of a commercial incentive to provide the USO there is a risk that the USP will lose focus on providing an efficient USO and thus allow costs to unreasonably increase beyond efficient levels. There is also a risk that, in a pressurised commercial environment driven by the need to maximise revenues, insufficient attention is given to the USO and allow poor work practices and inefficient processes are allowed to prevail over time. We highlight two issues that could act to mitigate this risk.

1. In our view the telephone directory could be commercialised to make money. It appears to us that the telephone directory is a burden to eircom hence maybe another party should take over this aspect to generate some revenue towards the USO.

2. We get no visibility as to how eircom provide services to uneconomic customers and whether up selling of their or other operator's products occur to increase the revenue potential. In addition there is no visability of whether infrastructure builds provide benefit to others and results in future revenue.

Further activity and transparency in these areas would reduce the likelihood of the risk identified above.

Recommendation

We strongly recommend that ComReg should engage expert telecom engineering

consultants to evaluate whether eircom is gaining value for money in the provision of the USO as part of the evaluation of the USO burden.

Q. 17. Do you agree with ComReg that a cumulative impression of static and dynamic criteria is more appropriate than adopting a particular quantitative threshold for key criteria to assess unfair burden? Please provide reasons to support your view.

A. 17. We agree with ComReg that a cumulative impression of both the static and dynamic criteria is more appropriate than adopting a particular quantitative threshold for key criteria to assess an unfair burden. We provide the following reasons for our view.

- The market is in constant change and quantitative thresholds could become obsolescent with time.
- The USP would have the motive and potentially the ability to engineer an outcome to take advantage of such of fixed targets,
- As per our answer to Q15, we consider that the monitoring of the trend is very important to assess the burden and whether action is required.

Q. 18. Do you agree with ComReg's preliminary view that, in relation to the period 1 July 2009 to 30 June 2010, any request for funding, together with supporting information that is sufficient to support its request, should be submitted to ComReg by 31 August 2011. If not, please provide reasons to support your view.

A. 18. We agree with the ComReg view.

Q. 19. Please provide any general comments or observations that you may have in relation to the above.

A. 19. We consider that if the intention is for the industry to pay for the USO the requirements for transparency will have to be addressed.

Q. 20. Please provide particular comments in relation to the type of information that is likely to be (reasonably) considered confidential or commercially sensitive.

A. 20. We consider that the existing confidentiality rules applied by ComReg should continue where possible.

Q. 21. Please provide your views in relation to the establishment of a "confidentiality ring" in certain instances.

A. 21. The consultation has been offered in the absence of actual data hence it is impossible for us to judge the size of the costs involved and also the actual processes for calculating both the net cost and the net benefit other than the high level view.

If a "confidentiality ring" is to be set up by ComReg where required, we would support this provided that it is genuinely required for a specific purpose and that such would be legally robust.

ALTO

20th January 2011

2 BT Ireland

BT Communications Ireland Ltd ("BT")

Response to

ComReg's Consultation Paper entitled "Costing of Universal service obligations principles and Methodologies" (ComReg 10/94).

Issue 1 – 20th January 2011

1. Introduction / Summary

BT welcomes the opportunity to respond to this important consultation on the Universal Service Obligation (USO). We applaud ComReg for the work it has done in recent years to monitor performance against the USO targets as such has certainly influenced the existing Universal Service Provider (USP) to achieve at least the basic service quality level, although in our view it's not best in class. We are of the strong view as discussed in our response that the need for the USP to "catch-up" to the basic USO standard is the result of the USPs past commercial decisions and should not now be rewarded financially or otherwise. Therefore the costs of bringing the network and service up to the basic USO standard should not be an allowable USO cost.

1.1 We would like to make the following general comments.

Reduced Cost Burden
The USO in Ireland addresses a small number of services most of which appear in decline as illustrated below:

- New Lines – It is evident in the press and the media that the Irish economy is in a downturn with the construction and housing industry particularly hard hit. Given new lines are largely driven by new developments we would expect the number and hence the cost of new lines to continue to reduce over the period of this review.
- Mobile phone substitution – ComReg report that the number of eircom fixed lines in use is reducing. There are a number of reasons for this, however there is a growing tendency, particularly by the younger generation to use their mobile phone for all calls rather than duplicate services by renting a fixed line. This scenario will also apply to some economic areas where wired access is not practical thus reducing the requirement for uneconomic lines.
- Payphones – The ubiquity of the mobile and fixed phone combined with the affordability (including aid through the Department of Social Protection) has significantly removed the need for uneconomic payphones. Our view is the ongoing managed removal of uneconomic payphones in Ireland should continue to reduce the cost burden.

- Phonebooks – these are getting smaller as people go X-Directory and their distribution costs should continue to reduce as competition increases in the postal sector. We believe ComReg should consider commercially reviewing this activity to determine whether efficiency and value for money is being achieved.
- National Directory Database (NDD) – this is a fairly basic database in Ireland with limited functionality and earns revenue from the marketing companies. The data held on the NDD is provided and updated by the industry and our view is that this should be independent of the USO and run commercially.
- Disability Services – We note that increasing pressure has been brought on other operators to improve their level of service to this important group and we note that developments in modern technology should improve the efficiency of offering inclusive services.
- Our view is that the 7k Euro line provision allowance is too generous and does not align with other European states and should thus be reduced and this would further reduce the cost burden.

In summary we are of the view that the cost of the USO to eircom has reduced over the years and will continue to reduce going forward.

Evaluating the burden and benefits

- **End-to-End cost valuation -** eircom is a vertically integrated company offering services at the access, wholesale and retail layers. eircom achieves a mark-up at each layer and equivalent will exist for the internally traded services. We consider the USO services provided by eircom must be considered as an end-to-end product removing the various mark-ups as these provide profit to eircom rather than a financial burden. We believe an end-to-end valuation will demonstrate a significant reduction in the financial burden on eircom and provide a realistic view.

- **High evidential threshold -** We believe that ComReg should apply a similar approach to other jurisdictions such as the UK and apply a high evidential threshold of the existence of an unfair burden and in the accuracy of data and calculations used in arriving at a net cost.

- **Individual net benefit Assessment. -** We are of the view that ComReg should evaluate all appropriate services taking an individual net benefit assessment as advised by the Commission.

No reward for poor service and "Catch-Up"

The consultation appears to be addressing how to fund eircom to "Catch-Up" with the basic USO compliance requirements. We believe eircom commercially chose, through their business decisions, the quality of USO services prior to 2009 and such was inefficient, particularly service assurance. We are of the view eircom should be fined and not rewarded for this action. They are responsible for the need to "catch-up" and should pay for such.

Efficiency and value for Money and alternatives.
This consultation should consider ways to ensure that eircom are meeting their USO obligations in an efficient way, particularly if eircom are attempting to get other parties to pay for such. For example we consider there are numerous ways the burden on eircom could be reduced such as below:

- For example a more commercial approach should be taken to telephone directories and the NDD made independent of the USO and run commercially.

Services additional to the USO.
We note that ComReg highlight in clause 3.11 of the consultation that eircom are providing additional services to their USO obligations. It is laudable for eircom to provide these, however they cannot be assessed under the USO costs as it is eircom's commercial decision to provide such additional services (whatever they maybe).

Tendering out the USO or parts of it.
As discussed later in our response we believe that eircom will be the obvious USP for the coming period, certainly to the end of the current designation in 2012, however if ComReg were to conclude that a significant levy is to be raised on industry for the USO such would raise significant concerns as to efficiency of the current USP. In this event we believe that ComReg or the Dept. should issue an open tender for a new USP to provide either part or all of the USO to determine whether better value can be obtained for offering the whole or part of the USO.

2. Detailed Response

Q. 1. Do you consider this HCA-based approach to be appropriate? Please provide reasons for your view.

A. 1. We note the use of CCA is gaining preference amongst regulators, however after consideration that eircom has only recently been directed to produce CCA information; we therefore agree with ComReg for the HCA based approach properly adjusted for efficiencies to be used for this review as the HCA data is available and mature. For the next review when the CCA data process has become mature in Ireland we may consider CCA could be a better approach.

Q. 2. How in your view, should capital expenditure invested by the USP in the past, in respect of potentially uneconomic USO elements/services, be treated for the purposes of a correct identification of the avoidable costs in the net cost calculation? What, in your view, are the appropriate principles for cost recovery in this regard?

A. 2. We agree that fixed, joint and common costs for core networks must not be included in the USO cost as the core network is required irrespective of the USO.

Additionally, the existing access network must not be included in the USO cost as it already exists to serve non USO services and customers. The exception is the specific incremental costs of installing new network tails to connect the existing access network to the new uneconomic customer sites, such as providing a long run copper over new poles to a customer. These cannot be used for non-USO customers and services otherwise they should not be a USO cost. The main cost should occur in the year that the service is installed; however it should be depreciated over the following years using the ComReg determined rates.

Q. 3. Do you agree or disagree with the approach proposed above? Please provide reasons for your view.

A. 3. We understand that the example of leased lines is being used by ComReg to highlight the principle and agree that all revenues should be associated with the uneconomic end of the circuit on the basis that if it was not provided revenue would not be generated.

We agree that all indirect revenue must be included in order to arrive at an accurate net cost of “non viable” customers to reflect the true economic value of these customers to eircom. If these are not included the net benefit will be understated

Q. 4. Do you consider the issue of replacement calls to be a material issue? If so, please explain your reasoning. What measurement / methodology do you consider appropriate that would provide a fair reflective measure of such revenues? Please provide reasons for your view.

A. 4. We agree that ComReg should include replacement calls as the customer clearly has a desire to make calls and would have used the service if it had been provided. Estimation of such is clearly difficult and the possible methodologies would be to survey a sample of customers or to quantify the level of calls from a sample of cells where the situation exists.

As each individual element of the USO requires its own net cost estimate, we believe that replacements calls are at least material to the net cost calculation of uneconomic customers therefore they need to be estimated.

Q. 5. Are there other revenues related to the “non-viable” customers lines, not mentioned above (either direct or indirect), which you consider relevant and that should be included in the net cost calculation? If so, please explain and provide examples.

A. 5. We agree that revenues related to “non-viable” customers including calls to low call; revenue share; and premium rate services should be included. Net profit from other products purchased by “non viable” customers from eircom must also be included, such as Broadband, call features etc. in order to determine the total net profitability of these customers.

Q. 6. What are your views regarding the potential treatment of "catch-up" investment (which may include CAPEX and OPEX)?

A. 6. Our understanding is that ComReg is asking whether eircom should be compensated for bringing their USO service performance to the basic standard required.

Our strong view is there should be no allocation of investment costs for eircom to "Catch up" to the basic USO standards. It was eircom's decision to invest or otherwise in their network and their choice to run their network inefficiently, with a view to increase their profits. That was their commercial decision and they should not be rewarded for an inefficient operation or catching up costs. Indeed, if it is at all possible a penalty should be levied on eircom for the poor repair service they inflicted on the industry and end customers prior to the actions of ComReg and the industry some two years ago.

The poor performance of eircom's network prior to the end of 2009, number of faults and time to repair caused significant additional cost to the industry in the extra resource required by the other operators to handle faults and the inevitable complaints.

To customers the poor performance caused frustration and stress due to their service not working and in many instances further stress due to the long time to repair. Long repair times for some customers became commonly known as 'Repair Tails' and the industry had to re-negotiate new contractually binding SLAs to incentivise eircom to prevent repair tails. Please see the WLR and LLU SLA agreements for the new incentive based approach.

Commercially the poor repair service caused some customers to challenge the operator's ability to offer services, hence in some cases losing customers. This was not helped by anecdotal evidence of eircom engineers telling customers they would have received a better service with eircom.

We applaud ComReg for taking action two years ago to start to monitor eircom's USO performance closely against international standards. This combined with the industry's re-negotiated contractual SLAs appear to have helped improve the situation to a point where eircom now meet the basic level of service; however it is not best in class.

We find it completely wrong that eircom could now be rewarded for such an inefficient and in our view awful service in the past. eircom made a commercial decision and eircom should live with the consequence rather than being rewarded.

Setting the Line Fault Index. – On a point of detail we consider that the Line Fault Index (LFI) figure legally agreed between ComReg and eircom is a step in the right direction but is still too generous to eircom.

Q. 7. What do you consider the most equitable allocation option is for "catch-up" investment? Do you have a preferred or alterative methodology that you wish to propose? If so, please explain in detail your reasoning.

A. 7. As in our response to question 6 there should absolutely be no allocation of costs for eircom to "catch-up" to the basic USO standards. The need for eircom to catch up to the basic USO standards was driven by eircom allowing an inefficient service to prevail and eircom should bear the cost of correcting their poor performance, not the industry and not the customer. ComReg should impose a levy on eircom for its inefficient operation.

Q. 8. What are your views regarding the potential creation of a delayed payment scheme or sinking fund to account for circumstances where the USP is directed to recover the net cost (as appropriate and as determined by ComReg) over a period greater than the remaining duration of the USP designation? Please provide reasons for your view.

A. 8. We believe there are a set of reasons why a USO sinking fund or delayed payment scheme is not relevant to Ireland at this time:

- We do not consider that eircom's market share will fall significantly in the period covered by this review and we do not perceive that any operator in Ireland has the ubiquity to offer a USO PSTN lines service on a national basis at this time. Hence we cannot see how the USO designation can be removed from eircom in the short term and the issue of a sinking fund or delayed payment does not arise.
- We believe that ComReg should view the USO burden on an end-to-end cost basis. eircom is a vertically integrated company however it offers services at the access, wholesale and retail layers. eircom achieves a mark-up at each layer and equivalent will exist for the internally traded services. We consider the USO services provided by eircom must be considered as an end-to-end product removing the various mark-ups as these are pure profit to eircom rather than a financial burden. We believe an end-to-end valuation will demonstrate a significant reduction in the financial burden on eircom and provide a realistic view.
- The poor economic environment in Ireland suggests there will be minimal investment in uneconomic PSTN telephone lines over the coming years as new building developments and housing are highly unlikely given the large surplus of empty dwellings and commercial property and the now high barriers to obtaining mortgages and loans.
- We expect the cost of uneconomic public payphones to steadily decline as they are removed.
- eircom have not signposted and we do not foresee eircom making any significant investments in any of the USO obligations.
- Our view is that the USO quality standards now being set by ComReg bring eircom to the minimum standard (except LFI which is still a poor target) which would be expected of any commercial organisation being paid for communications services, moreover it's the standard customers expect of all operators in Ireland. Hence we do not agree that eircom should be funded to

improve their service quality for meeting the minimum standard permitted and "catch-up" funding should not be entertained.

Q. 9. What are your views regarding the treatment of uneconomic customers in economic areas and what do you consider to be the most appropriate methodology that could identify the avoidable cost in relation to uneconomic lines in economic areas? Please provide reasoning to support your views.

A. 9. Firstly we would like to address uneconomic areas.
We agree the physical layout of eircom's network can help inform ComReg of potential uneconomic areas however this is not sufficient on its own as ComReg should also be considering the demographics of an area. For example a relatively rural area may be the location for a significant industrial park or a major business site which could have a major influence on the economic viability of the local exchange and access network. Hence our view is that economic areas derived from a network layout test should then be subjected to a demographics test to check for industry and other large users in the area.

Uneconomic customers in economic areas.
We agree with ComReg on the list of avoidable costs as exchange switches are designed to share the switching capacity amongst all users hence the capability has to be present irrespective of whether some users were provided uneconomic access.

Q. 10. How would you propose that the Net Present Value of uneconomic end-users is assessed to ensure there is no over-recovery of costs over the average lifetime of those particular customers identified? Please provide reasons to support your view.

A. 10.

Establishing the Cost
The cost of provision of an uneconomic line occurs in the year that it is installed and ComReg, in an earlier Decision notice, established the economic life and depreciation rates of eircom's various network assets such as cables, poles etc.

Establishing the time period for the benefit.
We consider that the average lifetime of the customers identified for a USO provided telephone line is different to average user lifetimes where access competition exists, hence USO benefit needs to be split into retail lifetime and wholesale lifetime as both provide benefit to eircom. Customers that avail of USO provided telephone lines do so as there is no alternative hence eircom will always benefit either in the retail or the wholesale market.

ComReg should have information of how long customers and premises that have been supplied lines under the USO have remained with eircom in the past; hence this sets the Retail time benefit for an NPV type test. However, the line will continue to earn eircom benefit in the wholesale market until such a time that the services is disconnected and this sets a longer period of benefit and should be factored into the

calculation. I.e. The net costs should be amortised over the lifetime of the installation.

Establishing the financial benefit
We agree the various tangible charging benefits identified by ComReg should apply such as the benefits from line rental, call revenue (outbound and inbound), indirect services and associated services such as broadband, dial up internet etc. These should be estimated per year over the time period above.

Establishing the non-financial benefit.
We agree other non-financial benefits will also be attained by eircom such as good will and brand loyalty etc and we believe ComReg should seek advice from experts in the marketing industry to help value the benefit.

Q. 11. Do respondents believe each of the benefits listed above are pertinent to the net cost calculation in Ireland? Please provide reasons to support your view.

A. 11. We agree the key benefits identified in clause 5 should be considered in the net cost calculation for the reasons provided by ComReg in the analysis.

Q. 12. What method or combination of methods for calculating the individual benefits do respondents consider to be the most appropriate? Please provide reasons to support your view.

A. 12. This is a complex subject and we consider that ComReg should commission appropriate independent experts with experience in valuing marketing, good will etc and engage in a programme of research including conducting independent surveys to determine methods to calculate the individual benefits.

Q. 13. What data (and from what sources) will ComReg require to most accurately estimate the benefits? Please provide reasons to support your view.

A. 13. Please see question 12.

Q. 14. Do you agree with ComReg's view that where a positive net cost is relatively small, ComReg should assess whether or not the costs of establishing and implementing a sharing mechanism would be disproportionate to the net transfers to the USP to decide on the existence of an unfair burden? Please provide reasons to support your view.

A. 14. We agree with ComReg that where a positive net cost is relatively small ComReg should assess whether or not the costs of establishing and implementing a sharing mechanism would to disproportionate and an unfair burden. The reason is simply the cost to establish and administer such a scheme will add additional cost to both ComReg and the industry and such is unreasonable if the sum to be recovered were small.

Additionally where the positive net cost is small we expect that ComReg would not proceed any further as the burden should not pose a significant competitive disadvantage for the USP.

Q. 15. Do you agree with ComReg's proposed approach (profitability and competition assessments) to decide on the existence of an unfair burden on a USP?

A. 15. We agree with ComReg's proposed approach (profitability and competition assessments) to decide on the existence of an unfair burden on a USP. We agree with ComReg's proposed Step 2 starting in clause 6.20 to evaluate the profitability and whether the USO is an unfair burden on the USP for the reasons below.

1. To conduct such a check establishes the magnitude and proportion of the USO costs to the USPs overall business and helps assess the overall impact of the USO on the USPs business.
2. This will also supply trend information to indicate over time whether the burden is growing or declining on the USP and thus providing signs such as whether ComReg should consider other options such as advising the USO should be put out to tender etc.

Q. 16. Do you consider that the identified range of profitability and competition criteria are objective and appropriate for assessing the issue of unfair burden? Are there other criteria that should also be considered?

A. 16. An efficiency test should also be included in the assessment of burden. We consider that in addition to the identified range of profitability and competition it is fundamental to assess whether the USP has gained value for money in providing the USO. We consider that the evaluation should be seeking to understand whether best practice has been deployed; whether efficient costs have been achieved to reduce the USO burden.

Given the lack of a commercial incentive to provide the USO there is a risk that the USP will lose focus on providing an efficient USO and thus allowing costs to unreasonably rise. It is also too easy for people under pressure in other commercially focused projects to take their eye of the USO and allow poor work practices etc. We would like raise two issues to support our view.

1. For example, in our view the telephone directory could be commercialised to remove the burden.

2. We get no visibility as to how eircom provide services to uneconomic customers and whether upselling of their or other operator's products occur to increase the revenue potential. In addition we get no sight of whether infrastructure builds provide benefit to others and future revenue.

Recommendation

We strongly recommend that ComReg should engage expert telecom engineering consultants to evaluate whether eircom is gaining value for money in the provision of the USO as part of the evaluation of the USO burden.

Q. 17. Do you agree with ComReg that a cumulative impression of static and dynamic criteria is more appropriate than adopting a particular quantitative threshold for key criteria to assess unfair burden? Please provide reasons to support your view.

A. 17. We agree with ComReg that a cumulative impression of both the static and dynamic criteria is more appropriate than adopting a particular quantitative threshold for key criteria to assess an unfair burden. We provide the following reasons for our view.

- The market is in constant change and quantitative thresholds could become obsolescent with time.
- The USP would have the motive and potentially the ability to engineer an outcome to take advantage of such of fixed targets,
- As per our answer 15 we consider that the monitoring of the trend is very important to assess the burden and whether action is required.

Q. 18. Do you agree with ComReg's preliminary view that, in relation to the period 1 July 2009 to 30 June 2010, any request for funding, together with supporting information that is sufficient to support its request, should be submitted to ComReg by 31 August 2011. If not, please provide reasons to support your view.

A. 18. We agree with the ComReg view.

Q. 19. Please provide any general comments or observations that you may have in relation to the above.

A. 19. We consider that if the intention is for the industry to pay for the USO the requirements for transparency will have to be addressed.

Q. 20. Please provide particular comments in relation to the type of information that is likely to be (reasonably) considered confidential or commercially sensitive.

A. 20. We consider that the existing confidentiality rules applied by ComReg should continue where possible.

Q. 21. Please provide your views in relation to the establishment of a "confidentiality ring" in certain instances.

A. 21. The consultation has been offered in the absence of actual data hence it is impossible for us to judge the size of the costs involved and also the actual processes for calculating both the net cost and the net benefit other than the high level view.

We are not against the establishment of a “confidentiality ring” set up by ComReg where required provided that such is genuinely required for a specific purpose and that such would be legal.

End

3 Eircom

eircom Ltd.

Response to ComReg Consultation

10/94

Costing of Universal Service Obligations: Principles and Methodologies

Document Name	eircom Ltd. Response to ComReg Consultation 10/94 on USO Funding
Document Owner	eircom
Last Updated	20th January 2011
Version	Final
Status	Non-Confidential

Introduction

eircom welcomes the opportunity to respond to this Consultation from ComReg in relation to the funding of eircom's Universal Service Obligation ("USO").

eircom has, for many years, been designated by ComReg as the Universal Service Provider (USP) in Ireland, and the attendant USO has cost eircom considerable amounts in that period. There is already a large body of evidence which clearly suggests that the provision of USO in Ireland is more difficult and expensive than in the rest of the European Union. The reports by DotEcon and Network Strategies, commissioned by eircom and presented to ComReg in 2008[1] found that Ireland has a much more rural-based and dispersed population than virtually all peer benchmark countries. As a result, the country is much more difficult and expensive to service with infrastructure such as a telecommunications network. Consequently, it is only to be expected that a USO fund in the Irish context would be significantly larger, pro rata, than it would be in most benchmark countries.

These findings are also reflected in ComReg's Decision No. D01/10 in relation to LLU pricing, which distinguishes between urban and non-urban lines, on the basis that operators are unlikely to serve certain, uneconomic, parts of the market. ComReg accordingly set the price for network access in the form of LLU at a level (€12.41 monthly rental) that is much lower than the average costs of the entire network (€18.12), reflecting the costs of a subset of cheaper urban lines (representing approx 13% of exchanges). This means that eircom is required to offer access to its infrastructure on a national basis at a price that does not allow it to recover its costs which were legitimately and efficiently incurred including, in particular, because of its USO. This means also that while eircom's competitors and their customers benefit from network access at a price that does not reflect the cost of USO, eircom, and all of its customers, in the absence of a funding mechanism, must bear the national average cost (costs rise to over €30 in low density provincial areas).

In this context, where ComReg has acknowledged that not all areas can be served under standard commercial conditions, eircom submits that it is essential that there is a funding mechanism in place so as to restore a level playing field for all competitors including the USP. Competition will not thrive for the benefit of all concerned if the USP is uncertain as to whether it will have access to compensation where a net cost is established that constitutes an unfair burden in the light of its individual circumstances. In the absence of a sharing mechanism for the USO net cost, having regard to the financial risks involved if eircom cannot recover its costs, eircom cannot fairly compete, and accordingly, its customers, in particular customers who rely on the USO for access, will not benefit from competition. Only a sharing mechanism will ensure fair competition and, as such, a universal fund is an essential piece of the regulatory framework for electronic communications.

eircom in this regard is surprised that ComReg does not, at any point in its Consultation paper, assess the Regulatory Impact of its proposals.

In addition to the above, we estimate that eircom's competitiveness could be improved substantially if different prices were allowed in urban and rural areas. However, the USP is required to *apply geographically averaged prices throughout the State for the (USO) services.* The revenue and profit foregone is considerable and is an additional cost of being the USP.

ComReg's Consultation on the principles and methodologies for the costing of universal service obligations is an important step in the right direction. In the current economic climate, and in view of eircom's repeated requests for funding in the past, the completion of the assessment of the cost of USO to eircom, and the establishment of an appropriate revenue-sharing mechanism to compensate eircom for the cost of USO must be a priority. eircom is of the firm view that it is entitled under the Regulations to compensation because the net cost of

[1] See Appendix 1 for the relevant reports

the USO, in the individual circumstances of eircom, clearly constitutes a very material and significant burden which eircom cannot bear and is accordingly unfair. In this regard, there can be no doubt that in Ireland, the essence of the universal service, namely to ensure that all have access to a fixed line regardless of location, at the same retail price nationally, has a very high cost. This is a cost to Industry, which all in Industry must share.

EIRCOM RESPONSES TO COMREG QUESTIONS

eircom's responses to the specific questions raised by ComReg are provided with reference to headings used by ComReg in the Consultation document, together with comments on ComReg's statements which were not the subject of specific questions.

I. PROPOSED APPROACH FOR CALCULATING USO NET COSTS AND REVENUES (EXCLUDING BENEFITS OF USO)

A. Costing Methodologies

Q1. Do you consider this HCA-based approach to be appropriate? Please provide reasons for your view

International best practice would indicate that a USO costing model should be based on forward-looking long-run incremental costs, including a normal return on capital as this would better approximate the costs of providing the USO services today. The European Commission in its Communication of 1996 on Assessment Criteria for National Funding Schemes,[2] referred to by ComReg in the Consultation in a different context, also recommended against HCA, preferring a forward-looking approach.

If, however, a HCA approach is to be used, then an appropriate set of allocation rules for costs will be required. For example, as stated in our response to ComReg Document No. 10/77, the LRIC Access Network model could be used to inform the allocation of the HCA cost pool to exchange areas so as to provide the required level of geographic analysis to support the USO costing exercise.

In addition, eircom is concerned about possible delays in eircom being adequately compensated for USO costs incurred. A Euro spent by eircom on USO in 2009 is worth significantly more to eircom than the Euro it may recover in 2012, as part of USO funding, both in terms of the time value of money and in view of eircom's current perilous financial situation, of which ComReg is well aware.

We also have concerns about the timing of any analysis from the point of view of who actually contributes to the USO. If an undue burden existed in 2009/10, then it should be funded by customers active in the market in 2009/10. It is unfair to expect customers in 2011/12 to fund the net costs which arose in different circumstances two years earlier. Similarly, a dynamic analysis that suggests the burden may become undue in later years should enable provisions to be made to estimate the required funding to be collected in those years. Consequently, ComReg should only contemplate the use of HCA as the basis of the costing exercise if payments are made concurrently as far as possible, with balancing payments at the end of the relevant period. Provision should also be made to inflate the payments into the fund appropriately to account for the time value for money, in the event that there is a significant time lapse between the spending of the money by eircom and the subsequent USO payment being made to eircom.

These concerns are related to the timing of the assessment of the USO net cost in a particular year. For example, if the USO costing model was only updated after the HCA accounts were finalised, there would be a significant time lag between when the USO costs were incurred and when the related USO funding was raised and passed on to eircom. While such a scenario is unavoidable for the 2009/10 financial year, it should not be allowed to arise in future years. To avoid this delay an assessment of the likely USO net cost could be made

[2] Communication from the Commission on Assessment Criteria for National Schemes for the Costing and Financing of Universal Service in telecommunications and Guidelines for the Member States on Operation of such Schemes, COM(96) 608 final, 27 November 1996, p. 6.

in advance of the relevant year-end by updating the USO costing model with projected costs, revenues and volumes at the half-year of each financial year. This is similar to the practice that has been adopted in relation to the setting of draft RIO rates in the past. ComReg could then use this model of projected costs and revenues to make an assessment of the net cost of the USO and thus the necessary level of funding that would be required for the full year. Operators would then be in a position to meet any required financing of the USO fund for a particular period from the revenues raised in that period.

Once the final HCA Regulatory Accounts have been published, the USO model would be updated with final year data to ascertain the actual level of funding that was relevant in that year. The level of USO financing would be revised if it emerged that the full year figure was significantly different from the earlier projected figure or, alternatively, as in the case of the payment of the telecommunications levy by operators, any under- or over-payments could be rectified by means of a balancing transaction in the succeeding year.

Projecting the net costs of the USO in this way would help ensure that the payments to the USO fund were aligned with the year the USO net cost was incurred. Cross checking the projected funding figure against the eventual results from the regulatory accounts ensures that any material variance with the actual cost data with respect to that financial period can be quickly addressed.

B. Avoidable costs

Q.2 How in your view, should capital expenditure invested by the USP in the past, in respect of potentially uneconomic USO elements/services, be treated for the purposes of a correct identification of the avoidable costs in the net cost calculation? What, in your view, are the appropriate principles for cost recovery in this?

eircom considers all past costs required to meet the USO obligations in force at the time are relevant. We also agree that the USO net costs should be calculated on the basis of "all" investments and "all" operating costs that could have been avoided if the provision of services to "non-viable customers" by the operator was not required under a USO. Avoidable costs are defined as the cost that an operator would avoid as a result of not undertaking uneconomic activities. In the case of USO costing, avoidable costs need to be calculated taking a long-run view because the decision to invest in providing Universal Service is a long-term one. Therefore all investments decisions in the past, and in particular, any investments made since privatisation in 1999, in respect of potentially uneconomic USO elements/services, should be considered in relation to the USO costing exercise, and should be considered relevant in the context of our initial USO funding submission which will cover the financial year 2009/10[3].

eircom made provision for capitalisation and depreciation on past investments on the basis of continuing USO, and in the reasonable expectation that the Industry would at some point fund the net costs.

In calculating the level of avoidable costs it is important that avoidable capital assets and avoidable overheads are included. In ¶ 4.38 ComReg states "*that it is only the portion of costs both capital and operational expenditure (be it fixed, variable or otherwise) that can be directly attributable/allocated to the service that could have been avoided which should be included in the net cost calculation*". This suggests that if a cost category is not directly attributable to a specific service or product in the HCA fully distributed cost model then it cannot be considered as avoidable. However, just because a cost can be treated as an overhead in a fully distributed costing model does not mean that it is not avoidable if a particular service or increment were no longer supplied. An example would be the case of

[3] eircom (and previously Telecom Éireann) has been continually designated as the USP in Ireland since 1999 in a succession of ComReg/ODTR Decisions, including D03/99, D17/03, Doc. 06/32 and D06/10.

accommodation maintenance and upkeep. In a fully allocated costing model such costs may be treated as an overhead on the accommodation costs that would have been directly allocated on the basis of building surveys. But, if an entire exchange area is deemed to be uneconomic then it is reasonable to infer that not only is the network equipment used to serve this exchange area avoidable, but so also is the exchange building that houses that equipment, together with the associated accommodation maintenance costs, transmission costs for the links connecting that site to the network, and perhaps elements of the backbone network capacity.

In fact top-down LRIC models are usually constructed to include independent and dependent cost categories. An independent cost category would relate to the likes of network equipment that will directly vary in quantity as the volumes of the incremental services such as the number of lines or calls vary. In the LRIC model two factors can determine the extent to which an independent cost category is incremental to a particular service increment:

- the extent that a particular Increment Specific Fixed Costs (ISFC) exists, and
- the Cost Volume Relationship (CVR) which shows how costs change in response to changes in service volumes.

The dependent cost category would refer to the costs that will vary as the quantity of some other cost driver such as the quantity of equipment or the number of staff changes and could include maintenance and accommodation cost categories. The dependent cost category would also have a CVR defined to show the relationship between changes in costs and the changes in the volume of the cost driver it is dependent on. Dependent cost categories would also include general overheads such as finance and HR, as these costs do vary to some extent as other costs such as pay costs or total business costs vary. Both dependent and independent cost categories would be included in the incremental costs of a network or service.

Therefore, while eircom would agree with ComReg's view "*that the fixed common costs and joint costs, with respect to the provision of services over the access and core networks, should not be included as avoidable costs*" (¶ 4.46), this does not mean that all the incremental costs in the access and core networks would have been classified as direct in the original fully distributed cost model. Fixed common costs and joint costs include the costs that are not incremental to either the core or access networks but these are not the same as the total of the indirect and common costs apportioned to these networks in the fully distributed cost model. As such, eircom does not agree that the issue of whether costs are directly allocated on a fully distributed basis is as fundamental to the quantum of the net cost calculation figure as ComReg suggests. Rather, the key issue is in terms of how the costs would be expected to vary in the long run if eircom had been able to make the decision not to supply services to customers in uneconomic areas, or uneconomic customers in economic areas. This could require that an analysis of how costs can vary in relation to changes in cost driver volumes, in particular a CVR type analysis might need to be applied to the HCA data to ensure an appropriate level of avoidable costs is identified for some cost categories.

C. USO Revenue calculation

Q.3 Do you agree or disagree with the approach proposed above? Please provide reasons for your view.

Q3 refers to the approach proposed when calculating relevant revenues.

eircom agrees with ComReg that revenues from USO customers should be considered when calculating the net cost of eircom's USO. However, in the case of indirect revenues, care should be taken to avoid double counting revenues. We note that ComReg agrees with the

need to avoid double counting as outlined in ¶ 4.94 ("*ComReg considers that all uneconomic areas identified, must be removed from the calculation in order to avoid double counting*").

It is also important that the revenue is identified in such a way as to include only net revenue, i.e. revenue from which eircom actually benefits. Where a revenue stream such as calls to premium rate numbers or mobile phones is considered, the corresponding costs must also be considered.

For example in ¶ 4.49 ComReg lists PRS revenues as relevant to the calculation of USO costs. However, it is important to note that eircom is not the ultimate recipient of most of this revenue, as a significant proportion of the gross revenue paid by the customer to eircom is passed on by eircom to the service providers, or by means of the deemed-to-be settlement to OAOs that host PRS service providers on their network. Therefore, clearly only the part retained by eircom should form an input to the USO funding model. This can be achieved either by considering net revenue after outpayments, or taking into account the outpayments as a cost.

We also note that in ¶ 4.49 ComReg lists Phonewatch revenues as potentially relevant to the USO calculations. Phonewatch is a non-regulated, competitive, business, and Phonewatch makes no payment to eircom, nor do any of the competing monitoring companies. Therefore, there would be no justification in ComReg considering incremental Phonewatch revenue as being relevant to its USO cost assessment.

In addition, it is important to note that a fixed voice line is not a requirement for a Phonewatch alarm, or even for a monitored service. Not all Phonewatch alarms are provided over copper pairs - some are provided by means of a SIM card, without the need for a copper pair or a corresponding fixed PSTN number. ✂ While Phonewatch would normally use the Meteor network for such GSM monitoring, in some instances, where there is no reliable Meteor coverage, other networks are used. ✂. So, where telephone service is not possible, in most cases mobile coverage is used ✂ leading to figures that would be immaterial in a USO context.

Also Phonewatch has a lower penetration in uneconomic areas ✂, which further reduces the materiality of the revenues involved. As outlined above, we believe that the revenue involved is immaterial, and, in addition, the efforts required to accurately gather and measure such revenue would be such as to justify disregarding it.

ComReg then proceeds in ¶ 4.49 to mention wholesale revenues as relevant to the USO costing calculations, and again eircom would acknowledge that this is valid, insofar as it refers to access revenues from OAOs such as SB-WLR, Bitstream and LLU, etc. However, the reference to wholesale calls revenue is not relevant. Clearly, retail revenues from OAO customers are proper to the OAO concerned, and therefore not relevant to any USO funding calculation. eircom does receive wholesale revenue for call origination and for call termination, but as these costs are based on the LRIC of the relevant service, one can assume the cost avoided if the customer were not served with SB-WLR is exactly equal to the revenue. Therefore, the net revenue after costs is zero. Only the net revenue (i.e. revenue after costs) for any wholesale service which is not strictly cost oriented (e.g. DQ calls) might be relevant. For the avoidance of doubt, we do not believe that wholesale calls revenue is relevant to the USO costing calculations.

In ¶ 4.51, ComReg proposes that the one-off connection charge should be included, in its entirety, as revenue in the USO calculations in the year in which the fee is received. eircom disagrees with this proposal. Instead, in keeping with the fundamental accounting "matching" concept, such revenue should be spread over the expected lifetime of the customer, in the same way as relevant CAPEX is written off over the expected useful life (EUL) of the asset involved. Similarly, the revenue above €7,000 referred to in ¶ 4.52 should be amortised over the expected lifetime of the customer connected.

In figure 4 on page 19, potential indirect revenue relating to a customer is illustrated. While it is true that calls to an uneconomic customer (A) from an economic customer (B) might constitute indirect revenue for A in the context of USO, the removal of this revenue from B might now have implications for the economic viability of B, potentially rendering B uneconomic. We clearly need to avoid the double-counting of revenue, so the situation is not as straightforward as indicated in figure 4.

eircom also notes the two alternative options put forward by ComReg in figure 5 for the apportionment of Leased Line revenue where one end (X) of the LL is uneconomic, and the other end (Y) is economic. For the same reason as above, (namely, the implications for the economic viability of Y if all of the revenue on the Leased Line ("LL") is attributed to X), eircom believes that the revenue should be allocated equally between the two ends of the LL.

There is an additional element of complexity in the case of LLs, in that not all LLs are identifiable to a particular telephone number or customer. In such cases, it may be necessary to allocate revenue across an exchange area and then make a judgment regarding how much of such revenue is relevant to the USO calculations.

Q.4 Do you consider the issue of replacement calls to be a material issue? If so, please explain your reasoning. What measurement / methodology do you consider appropriate that would provide a fair reflective measure of such revenues? Please provide reasons for your view.

eircom does not believe that the issue of replacement calls is a material issue for the purpose of USO net cost calculations.

In ¶ 4.57, ComReg suggests that a customer who currently uses a service provided under USO would, in the absence of a USO have no service, and instead make calls using the telephone of a relative, friend or at work. We note such a customer might also make calls using a payphone, mobile phone, or communicate by other means (e.g. text message, e-mail, letter or otherwise). The customer might also receive incoming calls – or messages left with neighbours, friends or relatives – by such means. However, there does not appear to be a direct way to measure the scale of replacement calls that might arise in the event that multiple adjacent uneconomic areas were not served.

We note the following:

Firstly, replacement calls will arise only for a portion of the calls currently made. The calls may be spread across the various alternatives (although, in the case of customers in uneconomic areas, or on very long, isolated, uneconomic lines, calls to and from neighbours or USO payphones would not be possible if the whole area is not served). Secondly, where mobile or wireless internet methods are used, there is no relevant revenue for eircom. Thirdly, where the replacement calls are made on the eircom network by an eircom retail customer, there may be no incremental revenue because of the prevalence of bundles which include call allowances, especially for unlimited local and national calls. However, such calls would have associated costs - even where no revenue arises. Fourthly, any incoming wholesale calls, or outgoing calls would simply generate sufficient revenue to cover the regulated costs.

If replacement calls are considered, they could be treated in various ways. Suppose replacement calls were 5% of current revenue. The possibility that a customer currently generating a revenue of 100% would generate 5% of that revenue even if not served would mean 95% of the revenue would be lost, if the customer were not served. Therefore, a customer with revenue of say 98 but cost of 95 becomes uneconomic to serve, because the cost saving of 95 is greater than the lost revenue of 93.1. So, consideration of replacement revenue would tend to increase the amount of uneconomic areas and uneconomic lines.

The replacement revenue (especially for uneconomic areas or isolated lines), would tend to arise on already economic lines (e.g. at work premises in a larger town). Thus, consideration of replacement revenue would tend to concentrate calls, and thus skew the analysis: making already profitable lines more profitable and making more lines uneconomic.

Overall, however, given the small scale of the relevant revenue from replacement calls, the small proportion that would arise on eircom's network, and the offsetting costs, we do not consider replacement calls to be a material issue.

Q.5 Are there other revenues related to the "non-viable" customers lines, not mentioned above (either direct or indirect), which you consider relevant and that should be included in the net cost calculation? If so, please explain and provide examples.

No.

Eircom believes that between ¶ 4.48 and ¶ 4.56 ComReg covers all aspects of revenue that might be relevant in the context of USO funding. Indeed, as outlined above, their proposals seem to encompass some revenues which would not be relevant to the deliberations.

ComReg refers in ¶ 4.57 to potential revenues from the directories services as being appropriate to nett off against USO cost. Eircom does not believe that this is appropriate, as the directory business is competitive with many competing directory services. Therefore, the benefits, if any, accruing to eircom are commercial benefits rather than benefits arising from eircom's designation as the USP of directory services.

D. Efficiency Adjustments

Q6. What are your views regarding the potential treatment of "catch-up" investment (which may include CAPEX and OPEX)?

On the question of efficiency, eircom agrees that the cost inputs used to calculate USO costs should be efficiently incurred costs. However, eircom has participated in numerous and detailed pricing and costing reviews by ComReg over many years (e.g. reviews of interconnect pricing, leased lines, wholesale price cap, retail price cap, PPCs, etc.). At the same time eircom has been implementing a series of cost cutting measures to further improve the levels of efficiency in eircom. As a result, eircom would be of the view that the scope for ComReg to apply further efficiency adjustments in the context of USO net cost calculations is quite limited.

It is also essential that ComReg recognises in its initial assessment that eircom has been the designated USP in Ireland for many years. In particular, it is important that investment decisions made by eircom in the past be judged against the investment options at that time, and not against some future potentially more efficient solution, which would not have been available at the time of the investment.

In terms of Opex and the appropriate LFI, eircom agrees with ComReg's approach as stated in ¶ 4.70 that eircom's actual network should be the basis for comparison. However, eircom does not agree with the use of the targets set by ComReg in D02/08 for the purpose of determining the appropriate LFI. As targets, the values provided for in D02/08 do not necessarily reflect the performance of eircom's actual network and reliance on them is

accordingly not consistent with the use of eircom's actual network as the basis for comparison. Rather, the actual LFI achieved by eircom's network should be used. In addition, even if the targets set in D02/08 were relevant (and eircom clearly does not agree that this is the case), then eircom would note that D02/08 sets different targets for different years, and that 14.5%, not 12.5%, is the value set in D02/08 for June 2010.

On the specific issue of "catch-up" investments, eircom has been investing in its network over the years, both to maintain the overall quality and effectiveness of the plant, and as part of its USP obligations. ComReg has also recently reviewed the regulatory economic useful lives (EULs) of eircom's assets, and new asset investments will be depreciated according to these EULs. The resulting depreciation should then be incorporated into the USO calculations in full. eircom does not believe that any part of the investment which we enter into to fulfill our USO should be disregarded by ComReg.

Indeed eircom would take the view that as many eircom assets (in particular, duct, cables and poles) have been depreciated up to 2008/09 using a much shorter asset life than ComReg has now found to be appropriate in D03/09, with the result that these assets are now over-depreciated. Consequently, the depreciation charged in the regulatory accounts for future years will be under-stated. Accordingly, we believe that, in this case, an element of NBV should be written-back, so that the actual depreciation charge taken into the USO funding model is properly reflective of the age and the original value of the relevant asset base.

Even in a case of "catch-up" investment, the CAPEX will assist eircom to meet its USO over the EUL of the asset, so ComReg should not disallow any part of the resulting annual depreciation charge. In fact, it could be considered that the investment would be more efficient than if it had taken place in earlier years due to technological advancement, falling civil works costs in recent years, etc.

As regards "catch-up" investment in the case of OPEX, as outlined, for example, in ¶ 4.74, eircom does not understand this concept. Clearly OPEX is distinct from CAPEX, in that OPEX is the ongoing cost for running a product, business, or system, whereas CAPEX is the cost of developing or providing non-consumable parts for the product or system. Accordingly, in keeping with well-established accountancy rules OPEX is written off in the year in which it is incurred whereas CAPEX is depreciated over the EUL of the relevant asset. Therefore, ComReg's reference in the bullets contained in ¶ 4.74 to depreciating this OPEX over an asset's EUL appears to be inconsistent.

Q7. What do you consider the most equitable allocation option is for "catch-up" investment? Do you have a preferred or alterative methodology that you wish to propose? If so, please explain in detail your reasoning.

Please see response to Q. 6 above. All depreciation on relevant capital assets should be included in the calculation of the USO cost, as should the total relevant OPEX (in the year in which it is incurred).

Q8. What are your views regarding the potential creation of a delayed payment scheme or sinking fund to account for circumstances where the USP is directed to recover the net cost (as appropriate and as determined by ComReg) over a period greater than the remaining duration of the USP designation? Please provide reasons for your view.

There is a clear parallel between the current situation in relation to USO designation, as outlined by ComReg in ¶ 4.75, and the recent exercise by ComReg in setting the maximum permitted charge for the provision of Emergency Call Answering Service (ECAS)[4]. The ECAS fee has been set by ComReg taking into account the fact that BT Ireland is the designated ECAS operator for a period of 5 years. In particular, ComReg set the price based on the fact that BT should be entitled to reclaim all of the relevant CAPEX expenditure over this period. This was ostensibly to guard against the possibility that BT might be left with stranded assets if another operator was designated as the ECAS operator following the expiry of this 5-year term. (In other words, if a particular ECAS-specific asset had a lifetime of 20 years, this was written off by BT over 5 years, and the resulting inflated depreciation charged then served to increase the money which BT could recoup for provision of the service).

The parallels with the current USO designation, as described by ComReg in ¶ 4.75, are clear. ComReg makes clear in ¶ 4.75 that the USP designation is for a limited period (i.e. until 30th June 2012, as per ComReg Decision D06/10). Then, for the sake of regulatory consistency, ComReg should allow eircom to depreciate all USO-specific assets over this period, in order to guard against the possibility of eircom being left with stranded assets in the event that it were to lose its USP designation post June 2012, having regard to the fact that eircom made these investments specifically to meet its USP obligations. That approach eliminates the issue of a delayed payment scheme or a sinking fund (as raised in ¶ 4.75 and in Q.8 above), as all relevant assets will have been fully depreciated by 30th June 2012.

Without prejudice to the above, in the event that eircom were to lose its USP designation at some point in the future, and at that point some USO assets were not fully depreciated, we agree with the point made by ComReg in ¶ 4.75 that, we should be allowed to recover all outstanding USO CAPEX expenses that are unrecovered at that point, and that all such costs should be recovered at the time of the removal of the USP designation, or within a short time thereafter.

[4] ComReg Information Notice 11/02 of 11th January 2011, "Adjustment to the maximum permitted charge for the provision of Emergency Call Answering Service (ECAS) for the period 12 February 2011 to 11 February 2012".

II. APPROACH TO COST IDENTIFICATION AND ALLOCATION

A. Uneconomic areas and uneconomic customers in economic areas

Q.9 What are your views regarding the treatment of uneconomic customers in economic areas and what do you consider to be the most appropriate methodology that could identify the avoidable cost in relation to uneconomic lines in economic areas? Please provide reasoning to support your views.

eircom generally agrees with ComReg's approach as set out in ¶ 4.80 to ¶ 4.98. However, we note that ComReg must be reasonable regarding the granularity demanded in their assessment of eircom's USO funding submission.

We also note ComReg's reference to the LLU model previously developed by ComReg, including the creation of "Housing Areas" and Isolated areas. It should be possible to leverage off this work when assessing the costs of USO in Ireland although a number of issues were still under discussion up to time of the publication of the final Decision by ComReg, including the calculation of price trends, and the "tilts" used in the model, as well as calculations around "long working lines" and on the allocation of common costs. In addition, the LLU model focused primarily on urban areas (since the final LLU price was set based exclusively on the costs of those lines), whereas, clearly, a USO funding model will concentrate on rural and isolated lines. We would also point out that the LLU model was developed in the period up to the end of 2009. In the event that ComReg proposed to use this model for USO funding purposes beyond 2009/10, it would be necessary to populate the model with updated volume and cost inputs.

Uneconomic areas

In ¶ 4.88 to ¶ 4.91 ComReg discusses the subject of uneconomic areas. We believe that uneconomic areas should be assessed, in the first instance, at the level of exchange area. If the totality of an exchange area is found to be uneconomic, then all of the costs of that exchange (e.g. exchange site, exchange building, power equipment, air-conditioning equipment, switching equipment, transmission equipment, MDF, exchange cleaning and facilities maintenance, access cables, poles, etc.) should be designated as avoidable. Thus, all such costs should constitute part of the input to the USO model.

Uneconomic areas may also exist at a level below the level of exchange area. For example, an eircom exchange may include in its catchment area a reasonable sized town and an outlying hamlet or village, such that the exchange area, as a whole, may be economic. However, the outlying hamlet may be uneconomic as a unit. In this scenario, as well as the specific customer infrastructure being avoidable, the plant used to connect the hamlet to the exchange (e.g. cable, duct, poles, FWA equipment, etc.) would also be avoidable. It might, in practice, be difficult to isolate all such costs in a model. However, it might be possible (e.g. by means of statistical sampling techniques) to deduce a factor which could be applied to accommodate this effect.

Uneconomic customers

In ¶ 4.92 to ¶ 4.98 ComReg refers to the subject of uneconomic customers in economic areas, and eircom agrees with the concept that customers in economic areas must be assessed individually to ascertain how many are uneconomic in each area, and then the avoidable costs pertaining to these customers must be removed from the model.

¶ 4.95 proposes that there are "*economies of scope*" for eircom regarding the increased number of housing estates that have been constructed (or partially constructed) around the country in recent years. Such construction has largely ceased since September 2008 and so

is less relevant for 2009/10. eircom would contend that, many such housing estates may in fact increase the cost of USO.

The reality is that we now know that that the building boom has left Ireland with a legacy of "ghost estates" comprising of housing developments at various stages of construction. Many of these houses will never be completed and may, in all likelihood, end up being demolished. Because of the existence at that time of the USO, many of these estates were pre-cabled by eircom during the early stage of construction. Clearly now, the cost of this work required by the USO will never be recovered from paying customers. This will lead inevitably to eircom being left with stranded assets as a direct result of its USP obligations. In the context of this discussion, it is worth noting that many of these new estates were situated quite remotely, for example close to a small village, thus necessitating the possible installation of new main cables or other infrastructure. We would also point out that, even following the recent building boom, Ireland's housing density is still low, by international standards.

In ¶ 4.97 ComReg alludes to the possibility that engineering rules might have a role in calculating the costs of uneconomic customers in economic areas. This is a very valid point, but it is important to distinguish between the current engineering rules which apply in the context of the existing USO, and the different engineering rules that might apply if eircom did not have the USO.

✂ At present, the USO requires that every housing area is served because any one house may require service under the USO. What would change in the absence of the USO is that some housing areas would not be cabled at all, because the incremental cost of serving the area (which may include new or extended RSUs, DSL equipment (where the new RSU is subdividing an existing area), transmission upgrades, and new main cables as well as local distribution) may exceed the expected incremental net revenue. The fact that cable TV operators often decline to serve many such new housing areas indicates there is a very real possibility that revenues may be less than costs.

It is valid to suggest that it is unlikely there could ever be an uneconomic customer in a housing area that would be served commercially. However, it is not valid to assume all housing areas – especially new construction rural locations - would be served in the absence of a USO.

We note that the obligation to charge uniform national tariffs arises specifically from the designation of eircom as the USP in ComReg Decision D06/10 (Document10/46).

For reference, in relation to geographically averaged pricing, ComReg state in ¶ 2.10 of D06/10 -

> *"As provided for by Regulation 8 (3) of the Regulations, eircom Ltd., as the USP, shall apply geographically averaged prices throughout the State for the services referred to in this Decision".*

Eircom has established that differential pricing – for example prices in urban areas based on urban costs, and prices in rural areas based on rural area costs – may generate significantly higher revenues and profits than a national price based on geographically averaged costs. ✂ The profits foregone clearly constitute an additional cost of being the USP.

B. Uneconomic Payphones

In ¶ 4.101 ComReg states that "*it is important that all access costs associated with public payphones within uneconomic areas are excluded to avoid a double count*". eircom does not understand this point. The methodologies in relation to uneconomic areas and uneconomic lines within economic areas are fully outlined by ComReg elsewhere in the Consultation, and eircom agrees broadly with ComReg's proposed approach in this area. These methodologies cover payphone lines in the same way as other lines. All payphone lines in uneconomic areas will be uneconomic, so the issue of a potential double count does not arise.

C. The Identification and Calculation of other USO Costs

In ¶ 4.103 ComReg outlines its view in relation to the provision of services to disabled users. eircom agrees with ComReg's view that the total avoidable cost is "*the financial net cost of the provision of specific services for disabled users, as a result of the USO designation which are in addition to the cost associated with the standard minimum level of service to disabled users (which are incurred by all operators)*". However, eircom does not agree that the "*total revenues foregone*", should be deducted from this figure. Instead, the revenue figure which should be deducted is the revenue that comes directly from the USO element of the service. In other words, the revenue associated with the "*standard minimum level of service to disabled users"* should not be deducted from the avoidable cost to get the net USO cost.

D. ComReg's preliminary view regarding the identification and calculation of USO costs

eircom notes ComReg's preliminary views, as outlined in ¶ 4.104 - ¶ 4.107. Specifically, eircom disagrees with ComReg's proposal in ¶ 4.105 for "*a further assessment of aggregate profitability per local exchange / MDF area*" after identifying uneconomic lines in economic areas. ComReg has outlined elsewhere in 10/94 - and eircom agrees with ComReg's proposed overall approach – that the assessment of exchange areas, and the identification of uneconomic areas are carried out in the initial stages of the process, and these areas are then excluded from further deliberations in relation to the identification of uneconomic lines in economic areas. This means that, having identified these uneconomic lines in the remaining (economic) areas, there is no need to reassess each exchange area in aggregate, as these areas have already been found to be economic earlier in the process.

In ¶ 4.97, ComReg appears to be raising a question around uneconomic customers who might be located in housing areas and proposing that eircom would serve these customers regardless of whether or not eircom was the USP. This line of argument is illogical, in that the criteria on which a particular customer is categorised as uneconomic is on the basis of **avoidable** cost. Clearly, in a housing area the avoidable cost of an individual customer is likely to be lower than in a remote rural area. Nevertheless, if the particular customer in a housing area is uneconomic (i.e. the avoidable cost of serving him is greater than the relevant revenues), a rational operator would not serve that customer, and eircom ought to be appropriately compensated for so doing through the USO fund.

eircom is also concerned to note, in ¶ 4.108 - ¶ 4.110, that ComReg appears to be separating the issue of USO funding from the setting of the LLU monthly rental price in early 2010, based on a sub-set of cheaper urban lines (ComReg Decision D01/10 refers). At the time of the setting of the LLU monthly rental price, ComReg accepted that eircom could not recover all of their legitimate costs based on a Directed LLU price of €12.41 per month, and that it would be reasonable to expect that the shortfall would be made up by means of a USO fund. This matter is outlined further in the Introduction above.

III. FORMAT OF APPLICATIONS

On pages 32-33, ComReg discuss the proposed format of eircom's application for USO funding. ComReg's proposal is that the application should be based on eircom's HCA accounts. Then, at "2" on page 32, ComReg proposes that the submission should be signed off by eircom's Board of Directors. eircom believes that such an obligation would be excessive, especially as, in compliance with the terms of ComReg's Decision D08/10, both eircom's separated accounts and eircom's "Additional Financial Information" statements will

be covered by associated compliance statements which will be already signed off by eircom's Board of Directors.

While eircom absolutely agrees with the necessity for transparency and the existence of a clear audit trail, eircom disagrees with ComReg's blanket statement at point "5" that "*there must be no hard-coded cells*". Inevitably, some cells in the worksheet will contain hard-coded values although eircom will endeavour to maintain all formulae where necessary.

✂

IV. APPROACH TO CALCULATION OF BENEFITS OF USO

Q10. How would you propose that the Net Present Value of uneconomic end-users is assessed to ensure there is no over-recovery of costs over the average lifetime of those particular customers identified? Please provide reasons to support your view.

In section 5 (page 34 et seq.), ComReg addresses the issue of the estimation of the potential benefits of the USO.

At ¶ 5.7, eircom agrees with ComReg that "*only benefits resulting from the designation as a USP should be included in the net cost calculation*". However, this viewpoint contrasts with the apparent credence ComReg accords (in ¶ 5.11) to the views of a particular respondent to the "Call for Input", where that respondent refers to the value of eircom's brand without apparently making any effort to quantify the benefit that arises by virtue of eircom's USO (or to even acknowledge that some brand recognition benefit is due to factors other than eircom's USO).

We believe that the issue of NPV of uneconomic customers potentially adds a layer of complexity, and consequent delay, to the overall process for no apparent gain. It is important that the process set up by ComReg be as practical as possible to implement and administer, with the minimum of overhead, in order to facilitate eircom in making its annual submissions for USO funding, and to facilitate ComReg in making a timely Decision in relation to these submissions. In this context, we note that the relevant costs to be included in the eircom submission must be based on actual costs, which will relate to the financial accounts for a specific time period. The legislation seems to envisage a situation where the USO applies for all time, and the net cost is assessed every year. In that context, we believe that the most efficient methodology would appear to be to compare the actual costs for a particular period with the corresponding relevant revenues for the same time. If one were to take a lifetime view and use NPV, there would be an equal probability of customers going from economic to uneconomic as going in the reverse direction. Therefore, we believe that it is reasonable to take a single-year view of costs and revenues in order to calculate the annual cost of USO.

Q.11 Do respondents believe each of the benefits listed above are pertinent to the net cost calculation in Ireland? Please provide reasons to support your view.

Eircom believes that the possible benefits listed in Section 5 of ComReg 10/94 are either non-existent or immaterial in the context of eircom. The response to Q.11 below should be read on this understanding and is without prejudice to this overall point.

In the discussion about any benefits that might be obtained by a USP by virtue of its USO, it is important to distinguish clearly between the net cost and the benefits of being the USO provider compared to the net cost and the benefits of being a large commercial operator without a USO.

In ¶ 5.8 of the Consultation, ComReg refers to comments made in the preliminary consultation that the benefits gained from being a USP outweigh the costs. There is no basis in fact for this view. In particular, eircom would point out that no operator applied for designation as the USP. This would be expected if the benefits outweigh the costs.

ComReg identifies several benefits:

- Enhanced Brand Recognition (vis-à-vis competitors).
- Ubiquity.
- Life Cycle value of particular customers or groups of customers.
- Marketing.

We will deal with each in turn:

Brand Recognition

ComReg correctly identifies "Enhanced" brand recognition, rather than simply the value of the brand. A large operator without any USO would have substantial brand value. Only the incremental value of the brand which arises specifically because of the USO is a benefit of the USO.

We would also point out that the USO, concentrated as it inevitably is in sparsely populated and potentially less developed areas of the country, carries with it an inherent risk to the brand. This aspect also needs to be considered as part of the current exercise.

One might seek to compare eircom's brand value with that of other large fixed telephony operators in Ireland, and attribute any excess (or shortfall) to the existence of the USO. There is however an inherent difficulty in establishing such values accurately.

ComReg seems to suggest that a benchmarking exercise might offer valuable insights. One must be careful to compare like with like when benchmarking, and a simple table of results found at various points in time by a random selection of NRAs may not be a very robust approach. Nevertheless, in Table 1 on page 37 ComReg benchmarks the brand recognition benefits of four USPs, all of which are considerably larger than eircom. It would appear reasonable to assume that the brand recognition benefit might be related to the population of the country in question. On that basis the following table shows the relationship.

	Population (M)	Brand Recognition (€M)	Ratio (€/hp)
France	65	18.3	0.28
Italy	60	15.3	0.26
Spain	46	5.8	0.13
U.K.	61	51	0.84
Average			0.37

On this basis of the average €0.37 per annum per head of population, eircom's brand recognition (of the order of €1M) could probably be taken as immaterial in the overall USO context. In addition, these figures may need to be weighted to account for the stage of liberalization in the country when they were calculated. For example, if the figure in Spain was calculated in 1999 when liberalization was new, and few consumers were aware of alternatives, it might be an over-estimate for Ireland for 2009.

eircom accepts that there may be some incremental brand recognition benefit to being a USP, but agrees strongly with the point made by ComReg in ¶ 5.17 (1st bullet on page 38) that this will be extremely difficult to quantify or measure, and that it will be subject to considerable uncertainty. In the final analysis, any such possible benefit will be entirely subjective and is likely to be immaterial.

Ubiquity

Ubiquity is listed as a separate benefit from Brand recognition and is addressed by ComReg in ¶5.24 - ¶ 5.32. ComReg has supplied data (in Table 2 on page 40) which indicates that NRAs in France, Italy and UK estimated this benefit as zero. We strongly agree that this should also be disregarded in an Irish context, as it will be impossible to measure with any degree of objectivity or accuracy, and will, in any case, be immaterial or non-existent.

In Spain, the NRA estimated 68,000 lines benefit from ubiquity, based on migration from towns of less than 10,000 population to towns of more than 10,000 population. We do not believe that, given Ireland's size, these parameters will be relevant here.

ComReg has suggested in ¶ 5.29 that migration flow data may be available from sources such as the CSO Regional Population Projections. However, such projections do not offer the granularity required to distinguish between economic areas and uneconomic areas.

ComReg's proposal at ¶ 5.28 is to compare the proportion of customers moving from uneconomic areas to economic areas who maintain service with eircom to the market share in economic areas. ✂ We note that the calculation of actual cost for a given period would take into account that some of these customers would have contributed revenue to the uneconomic area for part of the year, and to the economic area for the period after they moved, so there is no direct impact of the moving customers in a given period. But the benefit alleged here is that such moves in a future period will make some customers economic and current "losses" might be regarded as an investment in future profits. If such an approach were to be followed, the benefit calculation would have to take the NPV of such future profits (revenues and costs) into account, but in subsequent periods, this NPV would have to be carried forward, because the profit has already been used to offset the loss in the current year. In other words, if the profit in year 2 is used to offset a loss or net cost in year 1, then it cannot be counted again in year 2. However, it would seem inconsistent to consider ✂ users moving from uneconomic areas to economic, without considering ✂ customers moving in the other direction. This group might be expected to have lower broadband penetration, but perhaps the presence of less alternative infrastructure might lead eircom to have a larger market share. This set of calculations would require a lot of data analysis for an issue which is clearly not material. Overall, it would be simpler to determine that two sets of users offset each other, and that any possible benefit would be completely immaterial, meaning that this issue can safely be disregarded.

Furthermore, customers moving from uneconomic **lines** to economic **lines** may be less easy to identify. This may not be a sensible approach if limited to the retail level, because, even in uneconomic areas, all national operators using SB-WLR and CPS are present. So, if customers were already aware of alternatives, and chose eircom, then remaining with eircom is simply a preference (perhaps biased because of age, income or other factor) and not a direct measure of a market benefit arising from ubiquity. A more sophisticated measure, taking into account uneconomic retail and wholesale customers moving to areas with competing fixed infrastructure (such as LLU/LS, wireless broadband or cable networks) would be required. The cost of calculating this benefit accurately must be weighed against the impact on the net cost calculation. We note 3 out of 4 of ComReg's selected benchmark NRAs assume this benefit to be zero.

Life Cycle

The Life Cycle benefits heading (¶5.33 - ¶ 5.42) is used by ComReg to refer to customers who may become profitable in the future, so the reference (at ¶ 5.35 and ¶ 4.95) proposing that customers who have already become profitable should be excluded seems irrelevant. The annual calculation for a specific period will identify only those who are uneconomic in a given period.

At ¶ 5.35 ComReg proposes to identify the proportion of loss making customers who would become profitable subsequently, and to calculate the NPV of such profits, and then use this to offset the current losses in the period in question. In principle, eircom agrees that there are customers or areas that do not make profits in a specific year, but would nevertheless be served absent the USO, because the cumulative customer lifetime value makes them profitable. However, eircom does not accept that only future profits should be considered. It would be wrong to disregard future losses, and consider only the future profits. For example, imagine a customer who has a loss of €3 this year, then €2 next year, €1 the year after, then zero, then profits of €1, €2 and €3 in the following three years. He will be profitable eventually, but the cumulative NPV of these profits and losses may be negative depending on the number of years considered, and which year is under consideration.

We have also outlined above, in reply to Q.10, that we strongly favour taking a single-tear approach to costs and revenues, in the interests of simplicity, and because of the likelihood of offsetting effects if one were to take a multi-year approach.

By way of example, any such "adjustment" to 2009/10 actual cost by taking into account future "profits" in the calculation of 2009/10 net cost would need to be reflected in any future calculation of the net cost for subsequent periods. This will make the calculation for those years much more complex. Not only will there be an adjustment of the actual cost amounts by the adjustment brought forward, there will be forecast errors (i.e. a customer or area expected to become profitable might not, in fact, generate profits) to contend with. This could result in profitable customers in future years being unprofitable, because some of the revenue from the future year has already been consumed to make the customer profitable in 2009/10.

There is a further complexity that would need to be considered when taking account of future profits. In any given year, the future profits may well be offset by adjustments from previous years. Therefore the complex calculation is likely to have little or no impact on the net cost in the year under consideration. However, in the first year considered, there is no basis for the adjustment for prior years. So, if we were to bring forward €1m of benefits from 2010/11 to reduce the cost in 2009/10, when we would come to 2010/11 we might find we could bring forward expected profits from 2011/12 to offset the fact that we would have to pay back €1m of 2010/11 profits that we had "consumed" in 2009/10. The net effect in 2010/11 will be zero.

The first year modelled (i.e. 2009/10) would not have to "pay back" anything to 2008/09, but it is not clear what basis would be used to determine that no claim was made for 2008/09. Was there some notional claim on profits from 2009/10 or later years?

Finally, we should look to revenue and profit trends when considering future profitability of uneconomic areas and uneconomic customers. When Ofcom considered these issues in 2003/04, there was an expectation that numbers of customers and Revenue Generating Units (RGUs: i.e. a customer with fixed line and broadband is 2 RGUs), would continue to increase rapidly. Broadband penetration was increasing rapidly, and a building boom was driving the construction of new sites which might be uneconomic in their first or second year, but were expected to be profitable overall.

In 2011 in Ireland, such increases in customer or RGU numbers seem very unlikely. In addition, competitive pressures may drive further revenue declines. Therefore, increased profitability of areas or lines seems improbable.

It is also pertinent that Table 3 on page 42 shows that 3 of the 4 benchmark NRAs chosen by ComReg believes the Life Cycle benefit to be zero, while in the case of the UK it is immaterial. On this basis we believe firmly that ComReg should disregard this potential benefit as being absolutely immaterial.

Marketing

Table 4 benchmarks the marketing benefits of the same four USPs. Again, similar to Table 1 above, we would assume that any possible marketing benefits might be proportional to base population. This is tabulated below.

	Population (M)	Marketing (€M)	Ratio (€/hp)
France	65	0	0.00
Italy	60	4.8	0.08
Spain	46	0.8	0.02
U.K.	61	10	0.16
Average			0.07

On this basis eircom's marketing benefit might be around €250K per annum, which, in the overall context, should be considered to be immaterial.

eircom agrees that the loss of usage data for uneconomic customers would not lead to a loss of marketing benefits. We note the reference to advertising on public payphones and wifi hotspots. It is important to understand that part of the payphone business is commercially profitable, and indeed there have been competitors active in the business. So, marketing benefits from commercial (i.e. profitable) payphones are not attributable to the USO. Many unprofitable payphones, maintained solely to meet USO, are in locations that would not confer any marketing benefit. Possible benefits of marketing at such locations must be compared with the value of alternative marketing options (e.g. billboards) in the same locations (and not with alternatives in urban locations). This is the value that could be ascribed to the relevant payphones. As suggested by ComReg at ¶ 5.50, eircom can supply location information for all uneconomic payphones, allowing those which have an advertising value to be identified, and the total value to be established. We do not believe that such benefit would be material or significant, given the locations of these payphones and the low call rate from these payphone lines.

With regard to wifi hotspots referred to by ComReg at ¶ 5.46, eircom submits that wifi hotspots at otherwise uneconomic payphones would in fact have little value. ✂

The analysis of uneconomic payphones is separate from that of uneconomic lines, so it may be possible to allocate benefits directly to each payphone.

Q.12 What method or combination of methods for calculating the individual benefits do respondents consider to be the most appropriate? Please provide reasons to support your view.

As outlined in detail above, eircom does not believe that any of the potential benefits referred to by ComReg would be relevant or material in the case of eircom's USO funding submission.

If ComReg were to assess this issue further, they could adopt a first principles approach, and conduct market research where required, backed up by data provided by eircom regarding customer numbers, revenues and costs as required.

We note that the benefits from enhanced brand value (if any) arising from being the USP may overlap with the benefits (if any) of ubiquity, and care will be needed to avoid double counting

of benefits. This potential overlap may explain why the Spanish NRA (which calculated the lowest brand enhancement value) is the only NRA to calculate a significant ubiquity benefit.

Similarly, there may be overlap between ubiquity benefits and life cycle benefits.

Q.13 What data (and from what sources) will ComReg require to most accurately estimate the benefits? Please provide reasons to support your view.

It will clearly be extremely difficult to isolate the benefits that may accrue to eircom by virtue of it being the USP from the general benefits that eircom might gain from being the incumbent operator with the most extensive and longest established telecommunications "brand" in the country (in terms of eircom and its predecessor brands).

Nevertheless, ComReg would need to be able to quantify any value attributable to the USO prior to factoring such benefits into any USO funding model.

We would expect that eircom will be the chief source of data in relation to the benefits, if any, that it sees emanating from its obligations as the USP, and any potential benefits incorporated into the USO funding model should be consistent with comparable figures from eircom's audited accounts.

As made clear in reply to Q.11 and Q.12, the available data leads to the conclusion that the benefits identified are not material, and should be omitted from any calculation. Eircom is also likely to be the main source of data to identify the costs of USO - including the revenue foregone by maintaining national, geographically averaged tariffs.

V. APPROACH TO DETERMINATION OF UNFAIR BURDEN

ComReg should begin from the premise that if a net cost exists in relation to USO, it is likely to cause an unfair burden to eircom. This starting assumption can be justified on the basis of the rural nature of Ireland's population, as outlined in the DotEcon and Network Strategies reports which comprise Appendix 1 to this Consultation response, and also because of the current, well-documented .precarious financial position of eircom.

We will take questions 14, 15, 16 and 17 together.

Q.14 Do you agree with ComReg's view that where a positive net cost is relatively small, ComReg should assess whether or not the costs of establishing and implementing a sharing mechanism would be disproportionate to the net transfers to the USP to decide on the existence of an unfair burden? Please provide reasons to support your view.

Q.15 Do you agree with ComReg's proposed approach (profitability and competition assessments) to decide on the existence of an unfair burden on a USP?

Q.16 Do you consider that the identified range of profitability and competition criteria are objective and appropriate for assessing the issue of unfair burden? Are there other criteria that should also be considered?

Q.17 Do you agree with ComReg that a cumulative impression of static and dynamic criteria is more appropriate than adopting a particular quantitative threshold for key criteria to assess unfair burden? Please provide reasons to support your view.

A. Principles for assessing whether a burden is (un)fair

We recognise that under the Universal Service Directive and the Universal Service Regulations, the existence of a net cost is not in and of itself sufficient to justify compensation and the sharing of the net cost between operators. It must also be established that the net cost amounts to an "unfair burden". The decisions of the European Court of Justice cited by ComReg make it clear that the regulatory authority making that decision must set out the general and objective criteria against which to assess the existence or not of an unfair burden.

ComReg appears to propose two criteria, namely (i) the relative importance of the positive net cost of USO as compared to the administrative cost of the sharing mechanism; and (ii) whether the USP is "*placed in a situation of real competitive disadvantage in the market*" or, in other words, "*where this positive net cost significantly modifies market equilibrium and deteriorates a USP's market position".* In ¶ 6.8, ComReg also presents these two criteria as the last of a three-step test requiring that for the USO to represent an unfair burden, the positive net cost "*is material compared to administrative costs associated with a sharing mechanism and generates a significant competitive disadvantage for a USP.*"

<u>Administrative costs</u>

Insofar as the administrative cost of the sharing mechanism is concerned, eircom agrees that sharing the net cost of the USO may not be justified where that net cost and the administrative cost of the sharing mechanism are of comparable amounts. Clearly, however, the relevant administrative costs to be taken into account are not the costs associated with setting up the mechanism but those with administering such mechanism and eircom would expect such costs to be so low that eircom would not consider making an application for

funding if the USO cost were of similar scale. We note that there are a number of ways in which administrative costs can be reduced: for instance, payments to a universal service fund could be administered together with regulatory levy payments which would assist in reducing any potential administrative overhead.

Expressed in terms of materiality, this test is reminiscent of the practice which prevailed under the old regime for interconnect rates, in deciding whether final interconnection rates should be set at the interim level. While the ODTR/ComReg appeared to have a number of criteria to assess what constituted a "material difference" between actual costs and the interim rate levels, including the impact on eircom, and impact on each OAO, and money and percentage amounts, one approach was set out in Decision D07/01 where the ODTR stated, "*We believe that any retail price change that, singly or cumulatively, caused any element of the interconnect price gradient to change by more than 5% should be considered material".* A similar approach could be taken to assess the materiality of administrative costs as compared to the net costs of the USO such that where the net cost exceeds by at least 5% the administrative costs, the net cost is considered to be sufficiently material to demand compensation.

Competitive position/deterioration

ComReg also proposes to require that the net cost amounts to a "significant competitive disadvantage" or leads to a deterioration of eircom's competitive position. eircom does not believe that this is consistent with the provisions of the Directive as interpreted by the European Court of Justice. In its judgment of 6 October 2010 in Case C-389/08, *Base & Others v Ministerraad,* the ECJ found as follows (emphasis added):

> 42 (…) the unfair burden which must be found to exist by the national regulatory authority before any compensation is paid is a burden which, for each undertaking concerned, is excessive in view of the undertaking's ability to bear it, account being taken of all the undertaking's own characteristics, in particular the quality of its equipment, its economic and financial situation and its market share.
>
> 43 In the absence of any specific provision in this regard in Directive 2002/22, it falls to the national regulatory authority to lay down general and objective criteria which make it possible to determine the thresholds beyond which – taking account of the characteristics mentioned in the preceding paragraph – a burden may be regarded as unfair. However, the fact remains that the authority cannot find that the burden of providing universal service is unfair, for the purpose of Article 13 of the directive, unless it carries out an individual assessment of the situation of each undertaking concerned in the light of those criteria.

Accordingly, what must be assessed by an NRA is whether the USO net cost constitutes an unfair burden in the light of the *USP's ability to bear it*, having regard to the USP's individual circumstances, one element of which is market share. Arguably, market share is not the most significant of these criteria and it is relevant only to the extent that it may give an indication of the USP's economic and financial strength. This analysis does not, and eircom submits, cannot, require an analysis of the competitive position on the markets concerned of the USP. eircom notes, in this respect, that any market advantage that is enjoyed by the USP as a result of its designation must be quantified and deducted from the cost of the USO.

eircom in particular does not agree with ComReg's proposal at ¶ 6.6 that "*the extent to which an unfair burden arises is contingent … [on]whether or not this positive net cost, if any, impedes the USP from competing on a fair basis with the rest of industry".* In this regard, ComReg's emphasis on the market position of the USP, as justified in ¶¶ 6.11-6.15, appears to be based on a number of recitals of the Universal Service Directive including recitals 3 and

18 in particular. These recitals however are not concerned with the assessment of whether a net cost amounts to an unfair burden – as the ECJ acknowledges, this is a matter which is not dealt with in the Directive – but with the funding mechanism that is put in place once it has been found that the net cost of the USO represents an unfair burden. Issues that would require to be considered in this respect would include matters concerned with the timing of the payments and the criteria to be used to apportion the burden between operators.

eircom also notes that ComReg's test cannot be reconciled with the purpose of universal service obligations in the context of the regulatory framework for electronic communications and the exclusive role of SMP regulation under the framework in addressing competition issues.

ComReg's approach may have been influenced by the use in the English version of the Universal Service Directive of the word "unfair". A quick review of other language versions of the Directive shows that the concept of an "unfair burden" has less to do with fair competition than with the amounts of the net cost. While the Spanish version refers to an unjust or unfair burden, the Danish version refers to an "*unreasonable burden",* the French "*an unjustified charge"* and the Italian, "*an excessive charge*".

Eircom is accordingly of the view that what is required for the determination of whether a net cost constitutes an unfair burden is an individual assessment of the specific position of the USP concerned in terms of its ability to bear the costs of the USO. Whether another undertaking could have borne that cost is not relevant: this is a consideration that belongs to the designation of the USP. Once the USP is designated, particularly where, as eircom, it did not apply for such designation, it is entitled to compensation when the net of the USO cost constitutes an excessive charge for it, as determined against its own economic and financial circumstances.

B. Methodology for evaluating an unfair burden

Step 1 – Administrative costs assessment

As explained in our comments above concerning the principles proposed by ComReg, eircom agrees that the importance of administrative costs relative to the net cost of the USO is a relevant factor in assessing whether a net cost is an unfair burden.[5]

eircom would expect such administrative costs (which exclude the costs of establishing the funding mechanism in the first instance) would be rather small and largely shared with the regulatory levy.

In this regard, it appears to eircom that the order of magnitude of the administrative cost of a potential sharing mechanism can be quickly and reliably established, and that this should be done in advance of the far more complex and expensive net cost analysis and the results published. In this regard, information concerning the administrative costs of the financing mechanism would usefully inform eircom's decision on whether or not to make an application for funding and could save both eircom and ComReg significant expenses in terms of determining the net cost of the USO.

Step 2 – Assessment of the USP's Financial Position

eircom agrees that an assessment of the USP's Financial Position is an essential aspect of determining whether the net cost represents an unfair burden and that an element of this assessment is the USP's profitability. However, it is also essential that any such assessment

[5] eircom however submits that the question of administrative costs is a part of the unfair burden test rather than a separate issue as suggested by ComReg in ¶ 6.10.

takes into account the USP's level of indebtedness, either as part of the measure of profits or separately.

In this regard, the fact that the net cost is "relatively small" compared to the USP's revenues would be entirely insufficient for the purpose of determining the USP's financial position.

✂ it would appear to us any positive net cost that is material may constitute for eircom an unfair burden, that is an excessive cost having regard to its economic and financial position and accordingly its ability to pay. It is relevant in this regard that eircom did not apply for USO designation but was chosen by ComReg in all knowledge of eircom's position including in terms of network quality and financial position, ✂.

In ¶ 6.22, ComReg proposes to use "*the ratio between a positive net cost of providing USO, if any, and the revenues and/or profitability of a USP"* to determine whether "*the USO could be considered as part of the business plan of a USP"* in which case the net cost of the USO could be considered to be a "fair" burden. ComReg adds, "*In view that any sharing mechanism would only relate to the financing of USO, a USP should, in principle, explicitly declare those areas or groups of customers or those services which it would not serve but for the USO"*, citing the European Commission's Communication of 1996 on the Assessment Criteria for National Funding Schemes[6].

Insofar as the 1996 Communication is concerned, eircom notes that the requirement set by the Commission reflects the provision of the 1998 Universal Service Directive (now repealed) which required that NRAs "*ensure that organizations benefiting from such a shared financing scheme make a declaration to their national regulatory authority indicating the specific elements for which funding is requested."*[7] This is no longer a requirement (although the substance of it is maintained in the manner in which the net cost of the USO is assessed).

Regarding then ComReg's reference to a "business plan", this is not very clear.

It cannot be that ComReg is suggesting to check whether the business plan of the USP relies on certain USO funding expectations as this, if not self-prophesizing, could breach the accountancy principle of prudence in those cases where no provision for funding was made.[8]

It could be that ComReg is suggesting that below a certain ratio of net cost/revenues or profits, the USP could be deemed to have assumed to have accounted for that cost and that, as a result, that cost being dealt with so to speak, no funding could be required. Eircom does not believe that this is an appropriate approach because it does not appear to allow taking into account the impact of the net cost on the USP's financial position, regardless of how small or not that ratio is.

This concern is compounded by ComReg's proposals at ¶ 6.23 to rely on thresholds set in absolute terms by reference to "a reasonably efficient USP" and "*reasonable profits*".

Eircom does not believe that this test would be compliant with the requirements of the Directive as explained by the ECJ in *Base.* In particular, whether a net cost constitutes an unfair or excessive burden must be determined as against the operator who has been designated, not with regard to a "reasonably efficient USP" affording ComReg the economy of an "individual assessment of the situation of each" USP as required in *Base*. It should also be

6 Communication from the Commission on Assessment Criteria for National Schemes for the Costing and Financing of Universal Service in telecommunications and Guidelines for the Member States on Operation of such Schemes, COM(96) 608 final, 27 November 1996.

7 Directive 98/10/EC of 26 February 1998, Article 4.

8 The accountancy concept of "prudence" is one of the four fundamental concepts of accounting. These are the basic ground rules of accounting that or should be followed in preparation of all accounts and financial statements. The "prudence" concept requires that expenses and liabilities should be recognised as soon as possible, but that revenues should only be recognised when they are realised or assured.

recalled in this regard that efficiency issues will be recognised and appropriately taken into account in the context of the assessment of a positive net cost.

Eircom also notes that the profits of any USP, whether reasonably efficient or not, will always be lower if there is a positive net cost.

Finally, in ¶ 6.24, ComReg introduces the concept of a dynamic analysis, and proposes that ComReg will focus on "changes in" rather than absolute values:

- Changes in profitability, including an understanding of where a USP generates most of its profits over time;
- Changes in accounting profits and related financial measures (e.g., EBITDA analysis); and
- Changes in direct USO net cost, if any, over time
- Estimates of average level of cross-subsidy between classes of more or less separately accounted for services, and changes in these over time

In introducing a dynamic dimension to the analysis, ComReg appears to seek to come to a view "*on whether or not a positive net cost can continue to be borne by a USP alone in a generally liberalized sector".* It appears to eircom that this is not a matter which ComReg can legitimately have regard to, once a net cost has been established. The issue is whether that cost is excessive for it to be borne by the designated USP, having regard to its own circumstances, not a general question of whether it is fair or not that one operator only bears the burden.

eircom would also note that it appears difficult to reconcile ComReg's proposals in this respect with the timing and information requirements imposed on eircom in terms of applying for funding, which ComReg has not proposed to review. eircom in this regard submits that trends could only be relevant where the net cost is assessed over several years, in accordance with the length of the period over which the USP is designated.

For reasons explained in further detail in relation to ComReg's proposed third step, eircom does not accept that an assessment of the average level of cost subsidy between classes of services can be relevant to a determination of whether the net cost of USO is a fair burden.

Step 3: Competitive Distortions Assessment

ComReg also proposes to determine whether a net cost amounts to an unfair burden where it can be shown that this net cost "*impose[s] a competitive disadvantage on a USP using a broad range of criteria such as changes in prices over time; changes in market share and/or changes in related markets; and market entry barriers"*. eircom believes that this test is not consistent with the provision of the Universal Service Directive and the Universal Service Regulations or with the *Base* decision. eircom submits first that such a test appears to entirely ignore the reason why a USO is imposed in the first place, namely to remedy market force deficiencies and the failure of competition to deliver services to all users and that, in this respect, it is the absence of funding when it is justified that will create market distortions. eircom would submit in this regard that the absence of the funding of the USO explains why line rental prices do not reflect the costs of the areas in which it is economic to provide services, as ascertained by ComReg in the context of its LLU Pricing Decision.

In accordance with the regulatory framework principles, ComReg in conducting market reviews, must take into account the existence of the USO and its funding principles, not the other way around. In particular, existing regulation at retail level (now in place for over three years) cannot justify a finding that the burden of net cost of the USO is fair. To the extent that ComReg perceives that the introduction of a fund would change the situation on the retail

market for line rental, it is required to review that market, not find against the existence of an unfair burden.

Second, eircom believes that ComReg's proposals are inconsistent with its statutory objectives in that they appear to encourage behaviour which both the regulatory framework and the competition rules seek to avoid, including for example the use by the USO of "*its dominant position to recover any cost from customers".*

It appears to eircom in this regard that the criteria listed at ¶ 6.27, rather than indicating distortions, explain the existence of a smaller or larger net cost. eircom does not believe that they are relevant to assessing whether the burden of the net cost on the USP is excessive.

Conclusion

eircom agrees that profitability criteria should be identified for the purpose of assessing whether the net cost of the USO represents an unfair burden on the USP concerned, taking into account all financial information that is relevant to its ability to pay for such cost. However, we do not agree that it is appropriate to take into account any "competition criteria". Rather, in accordance with the approach followed by the ECJ in *Base v Ministerraad* which requires an individual assessment of the situation of the USP concerned, appropriate criteria could seek to assess the relative importance of eircom as a market player in electronic communications in Ireland. This would require a comparison of eircom's market shares with its nearest competitors and an assessment of any significant difference that there might be between eircom and its competitors in terms of the number of electronic communications markets in which eircom and its competitors are involved and any specific advantage benefiting eircom's economic position to a material degree (for instance, in terms of ownership).

In the light of the above, eircom submits that the threshold beyond which a material net cost becomes an unfair burden must be set having regard to the following factors:

- eircom's economic and financial situation, ✂
- The financial consequences for eircom as a result of its designation as a USP, including in terms of D02/08, in circumstances where eircom did not apply for designation
- eircom's market shares on electronic communications markets generally as a means of comparing eircom's economic strength with those of its competitors. Account in this context should also be taken of the fact that eircom's main competitors are by and large all subsidiaries of significant electronic communications providers in other Member States.

VI. PROCEDURE FOR REQUESTS FOR FUNDING (2009/2010)

Q.18 Do you agree with ComReg's preliminary view that, in relation to the period 1 July 2009 to 30 June 2010, any request for funding, together with supporting information that is sufficient to support its request, should be submitted to ComReg by 31 August 2011. If not, please provide reasons to support your view.

✂

VII. TREATMENT OF CONFIDENTIAL INFORMATION

Q.19 Please provide any general comments or observations that you may have in relation to the above.

The preamble to questions 19-21 (i.e. all of section 8 of Consultation paper 10/94) deals with ComReg's treatment of confidential information. eircom does not understand why ComReg appears to attach such importance to this issue in the case of this particular Consultation process over and above any other Consultation.

There is an established process known to and followed by all, including ComReg and all operators regarding the treatment of confidential information, and eircom sees no justification for departing from this process in this particular case.

In the course of our ongoing bilateral engagements, eircom regularly shares with ComReg data and information that is either commercially sensitive or strictly confidential, or both. We would acknowledge that ComReg acts in good faith in the exercise of their duties not to disclose or publish any material that eircom deems confidential, typically allowing eircom to redact from published documents parts of the information it (eircom) considers to be confidential. We have no reason to believe that any additional or alternative measures are called for in this particular case. A continuation of this process, which ComReg put in place almost six years ago (following its publication of document 05/24), and which has been working well since that time, is perfectly adequate to ensure that all sensitive material is properly protected by ComReg.

Q.20 Please provide particular comments in relation to the type of information that is likely to be (reasonably) considered confidential or commercially sensitive.

As outlined in the response to the previous question, there is nothing particularly unusual or unique about the current Consultation, which justifies or explains the inclusion by ComReg of Section 8 in relation to confidentiality in its Consultation paper.

The general practice over many years is for eircom, in response to ComReg Consultation Papers and Draft Decisions, to submit confidential and non-confidential versions of eircom's response to ComReg – the non-confidential version being for subsequent publication by ComReg.

In the cases of non-confidential responses, eircom typically redacts any segments of the confidential response that it considers to be either confidential or commercially sensitive. ✂ Consequently, ComReg is fully aware what type of data and information eircom (and presumably also other respondents) considers to be of a confidential or sensitive nature.

✂

Q.21 Please provide your views in relation to the establishment of a "confidentiality ring" in certain instances.

As stated previously, eircom's view is that, at a general level, this Consultation process is essentially similar to other ComReg Consultations and data requests, as far as ComReg's treatment of confidential information is concerned.

ComReg initiated this process to ascertain the cost of eircom's USO burden, and eircom is currently actively engaging with ComReg on this issue, having already responded to ComReg's Call for Input (10/77), ✂. It is also worth noting that much of the data already submitted to ComReg in the course of this project is confidential in nature.

ComReg must evaluate these submissions from eircom, as well as submissions from other stakeholders. ComReg's proposal to establish a "confidentiality ring" is unnecessary.

It is also informative that eircom's research indicates that no other telecommunications regulator uses the "confidentiality ring" approach, either in its approach to USO funding, or in their broader dealings with operators. Any proposal for a "confidentiality ring" is superfluous and should be set aside.

Appendix 1

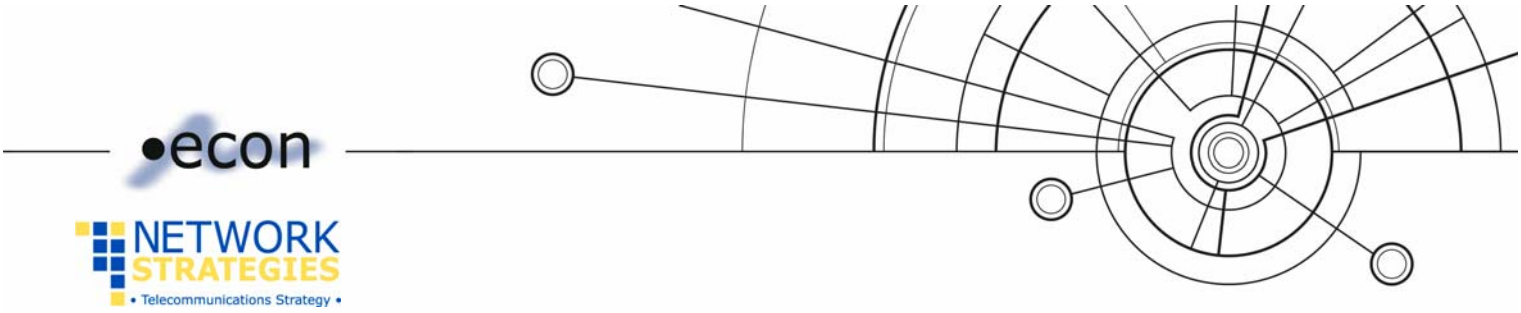
Reports by Dot-e-Con and Network Strategies

See attached associated files:

- 110120_USO_Response to 10_94_Appendix 1_081118 DotEcon Phase 2 Presentation_Summary.pdf

- 110120_USO_Response to 10_94_Appendix 1_080905 Network Cost Model for Ireland Final Report_DotEcon.pdf

- 110120_USO_Response to 10_94_Appendix 1_081118 NS Phase 1 Presentation_ComReg.pdf



Network Access Cost in Ireland

Modelling equivalent costs in European countries
Client Confidential

By DotEcon
and Network Strategies

28 August 2008

Contents

Tables & Figures

Executive Summary

Background and objective

The cost of connecting fixed telephone lines to a network is not typically uniform across customers. Customers close to the core network can generally be served at a lower cost per unit than those located further away, as can customers who are clustered together compared to those who are more dispersed. Despite this variation in cost of providing connections, in Ireland (as in many other countries) there is a uniform charge for access to fixed line telecommunications networks.

When price controls are used, the task of the regulator is to set the uniform access price at a level that ensures that costs are fully recovered, that provides network operators with sufficient incentives to seek efficiencies and engage in an appropriate level of network maintenance and investment, but that does not provide for profits accruing to network operators beyond a level deemed reasonable. A number of methods have been used by regulators to establish exactly what that level should be; most notably building network cost models and benchmarking costs based on prices in other countries. The use of access prices from other countries as a benchmark for access prices in Ireland has a particular drawback; such benchmarks are unlikely to provide a reflection of costs comparable to those incurred in Ireland as a result of differences in the geography of Ireland relative to that in other benchmark countries.

DotEcon and Network Strategies were commissioned in February 2008 to carry out a study in order to determine whether or not access network costs for fixed telecommunications in Ireland might be higher or lower than those of other EU / OECD countries. In particular, it was required that appropriate comparisons with derived or otherwise determined access network costs in other relevant countries be made from which conclusions be drawn and recommendations made in relation to pricing access network services. Specific attention was to be given to examining how the dispersion of households in Ireland contributes towards the cost of providing fixed telecommunications services relative to other countries.

Ireland has unique demographics

Using publicly available data we show that, although no two countries in Europe are identical, Ireland stands out as being unique. The evidence suggests that the population of Ireland is moderately and rather uniformly distributed, with the exception of Dublin. As a result, urban areas in Ireland are typically less densely populated, and rural areas more densely populated, relative to other European countries.

These findings suggest that comparing differences in population density between countries at an aggregate level is rather meaningless and it is inappropriate to reach a conclusion that countries are similar based on a single metric. National population density is a relatively poor measure of the distribution of the population because it ignores the extent of clustering of households within the region or country.

Differences in demographics are particularly important when determining the network access cost of a country because population dispersion may have a

considerable impact on costs. Countries with densely clustered populations will, by and large, be less costly to serve. This suggests that in order to accurately capture differences between countries one must utilise finely disaggregated data on population locations and it is not appropriate to compare costs across countries without somehow correcting for differences in demographics.

Assessing differences between countries

It is not feasible to develop a network cost model for each European country in order to assess the impact population dispersion has on cost both because doing so would be an expensive exercise and in practice much of the information required is only available to the operator in any given country. Instead, the approach taken by DotEcon and Network Strategies is to develop a cost model for Ireland and use that to predict the cost in other countries based on data on the demographics of each country.

The US Federal Communications Commission's Hybrid Cost Proxy Model (HCPM) is used as the basis for modelling the cost of fixed line telecommunications in Ireland. This model has been proven to be robust; as a result it has been, and continues to be, used in a number of countries as the basis for determining universal access service costs and associated funding levels.

Although the HCPM is a model developed for the US it is suitable for modelling costs in Ireland because it can be customised to reflect the cost of a network in an individual country by adjusting input costs, geographical data and engineering assumptions. HCPM is particularly suitable for determining cost drivers, which may be unique to a country or geographic area within a country, because it can use localised geographic information.

HCPM is a bottom-up, scorched-node model; the network is modelled from information on individual nodes (house and business locations) first with infrastructure added to build an entire network using a set of basic equipment types and design rules. Being scorched-node means that an operator's exchange locations are retained, but the model can re-design the network from the exchange to customer locations and between exchanges.

The estimated network costs for different areas of Ireland are married with bespoke demographic data. Two similarly specified econometric models are used to estimate how network costs are influenced by demographics (primarily household density and street density). Those econometric models are then used in conjunction with demographic data from other European countries to predict comparable costs in other countries, as though cost inputs are identical to Ireland, but allowing demographic characteristics to vary. In essence, we estimate the cost per line for our HCPM network cost model for Ireland as if the population was distributed as it is in other countries.

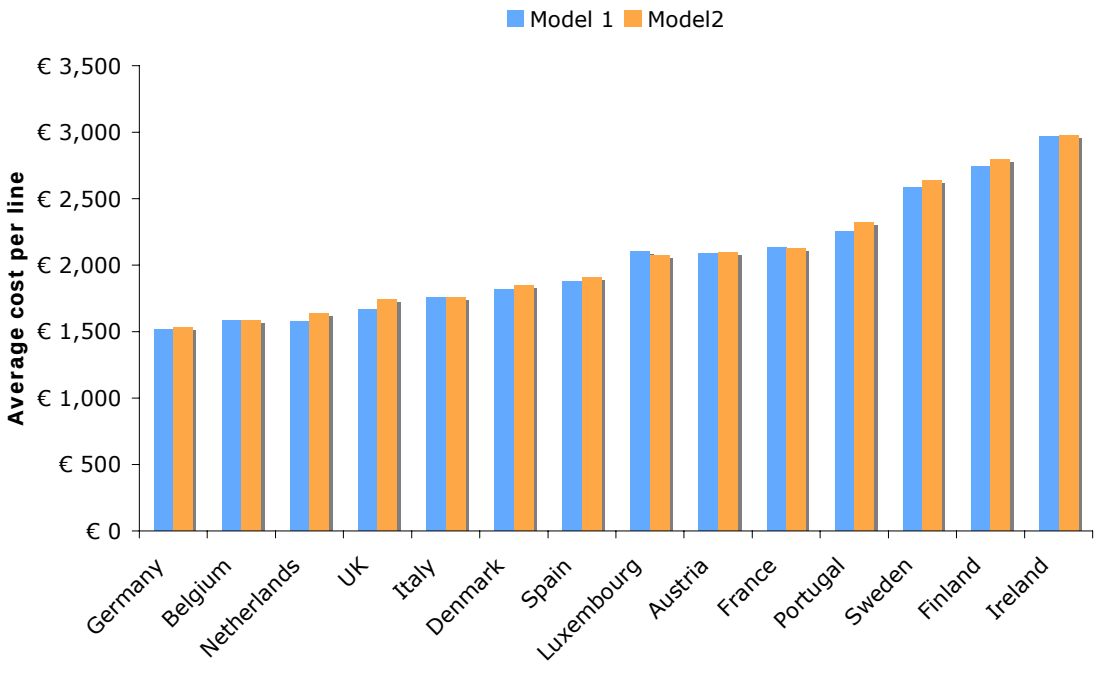
Results indicate Ireland is more costly to serve than EU15

The predicted cost per line for European countries (shown in Figure 1 below) highlight that, when input costs and network build rules are restricted to be

comparable across countries, there remains considerable differences in the cost of access between countries which is attributable to differences in demographics. Specifically, the model of network cost predicts that given the characteristics of all other European countries, the cost per line in Ireland is considerably larger than the EU average and also larger than most other individual countries. This evidence suggests that the unique dispersion of the population in Ireland greatly adds to the cost of providing fixed line telecommunications.

The cost of access in Ireland is considerably larger than in many other countries (see Figure 1). Countries with relatively uniform dense populations in particular are predicted to have large cost advantages over Ireland on the basis of differences in demographics. Even countries which are considered to be relatively sparsely populated based on national indicators typically have lower predicted cost than Ireland. This is because the population in sparsely populated countries typically is not uniformly spread across the country but tends to be concentrated within specific areas. As a result, large swaths of those countries remain unpopulated or extremely sparsely populated and are therefore not served by the fixed network.

Figure 1: Predicted average cost per line across Europe

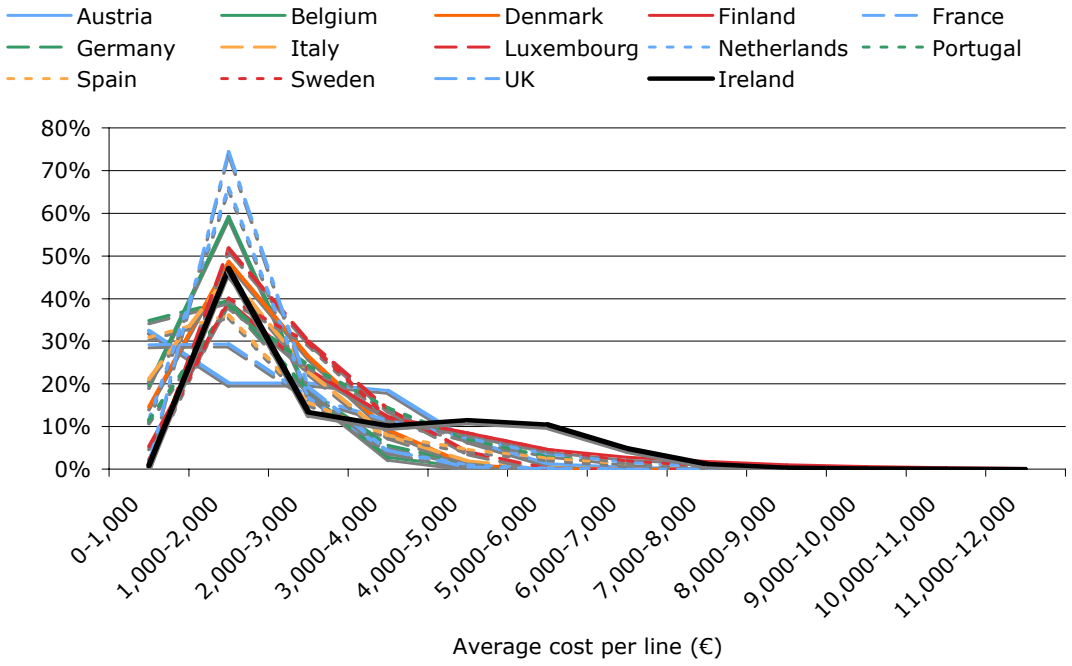


Source: DotEcon

The breakdown of cost per line across countries is illustrated in Figure 2. This figure shows the different proportion of lines that fall into each cost category for all countries, highlights that relative to other countries, Ireland has few very low cost lines (€0-€1,000). This is consistent with a lower proportion of the total population living in urban areas and the urban areas

in Ireland being less densely populated than other countries. In addition, the profile of lines in Ireland does not display the same drop in the proportion of lines with a per unit cost exceeding €3,000 that is evident in all other European countries. In fact, Ireland has a larger proportion of lines that cost between €4,000 and €7,000 (i.e. lines with cost substantially above average) than any other country. This is consistent with large parts of rural Ireland being relatively densely populated compared to rural areas in other countries.

Figure 2: Proportions of lines by predicted cost per line (up to €12,000)



Source: DotEcon

The evidence presented in this report, both on differences in demographics and from predicting network costs across Europe, suggests that the unique population dispersion in Ireland is largely responsible for contributing to fixed network costs that are greater than those in other EU15 countries. As a result, extreme caution should be used when considering any benchmark comparison of network access costs based on other European countries. Without taking account of differences in demographics, such a comparison is likely to be flawed and to underestimate the true cost of network provision in Ireland.

Ignoring differences in drivers of cost between countries and seeking to impose a regulated access price for Ireland at or close to the European average would jeopardise the sustainability of investing in fixed line networks in Ireland. Allowing a return sufficient to recoup the cost of

network provision is vital to ensure that the network continues to grow in Ireland, that new services are brought to the market swiftly and that benefits from platform competition are not stifled.

1 Introduction

The cost per unit to a network provider of connecting households to its network is not typically uniform across customers. Customers close to the core network can generally be served at a lower cost per unit than those located further away from it. Similarly, economies of scale exist where multiple customers are located close together, whereas isolated customers are relatively more expensive to serve.

However, despite this variation in cost of providing connection across customers, most customers pay a uniform charge for access to fixed line telecommunications networks. This method of charging has come about in part because of the difficulty in implementing a policy of charging based on the actual cost and often the cost of installing (and maintaining) individual lines is not known. Other motives for uniform charging include extending social inclusion and maximising network effects.

Nevertheless, the use of uniform access pricing to recoup costs that vary across customers presents the challenge of setting this uniform price at an appropriate level. Where the price of services are regulated, the task of the regulator is to set the access price at a level that ensures that costs are fully recovered, that provides network operators with sufficient incentives to seek efficiencies and engage in an appropriate level of network maintenance and investment, but that does not provide for profits accruing to network operators beyond a level deemed reasonable.

A number of methods have been proposed to establish a level of costs to use as a basis for access prices, most notably building network costs models and benchmarking costs based on prices in other countries. Both of these types of cost estimations have advantages and disadvantages that apply generally in their application. However, the use of access prices from other countries as a benchmark for access prices in Ireland has a particular drawback; such benchmarks are unlikely to provide a reflection of costs comparable to those incurred in Ireland as a result of differences in the geography of Ireland relative to that in other benchmark countries.

DotEcon and Network Strategies were commissioned in February 2008 to carry out a study in order to determine whether or not access network costs for fixed telecommunications in Ireland might be higher or lower than those of other EU / OECD countries. In particular, it was required that appropriate comparisons with derived or otherwise determined access network costs in relevant other countries be made arising from which conclusions be drawn and recommendations made in relation to pricing 'access network' services. Specific attention was to be given to examining how the dispersion of households in Ireland contributes towards the cost of providing fixed telecommunications services relative to other countries. That is, the purpose of this study is to explore to what extent the dispersion of households explains differences in the costs of telecoms service provision between countries and, consequently, the extent to which international benchmarks may under- or over-state the cost of provision in Ireland.

To conduct this study we proceed as follows: in section 2 we examine the demographics of Ireland and make comparisons with European counterparts.

In section 3 Network Strategies outline build a model of network costs in Ireland taking into account customer locations and other factors that influence network cost is outlined. In section 4 DotEcon use a simplified version of the cost model to predict access costs in other European countries as if network build rules were identical across countries, and only demographics differentiated them in. Finally, section 5 presents the conclusions of our analysis and their implications for setting the network access charge in Ireland.

2 Demographics of Ireland

2.1 Introduction

This section examines the demography of Ireland and shows how it differs from other European countries. We show that although no two countries are identical, Ireland stands out as being unique among European countries. The evidence suggests that the population of Ireland is moderately and rather uniformly distributed, with the exception of Dublin. As a result, urban areas in Ireland are typically less densely populated, and rural areas more densely populated relative to other European countries. In contrast the populations of other countries are either densely and fairly uniformly populated, moderately populated but with pockets of densely populated areas, or sparsely populated with clusters of high density.

First, measures of population density at the national level are examined. Then the distribution of the population within each country is examined using regional data. Finally we examine some anecdotal evidence of population dispersion. Although Ireland is not starkly different to all other European countries when comparing any single aggregate measure of population density, the results across metrics, and disaggregate data suggest that Ireland is unique in having a concentrated urban population around one city (Dublin) with a relatively large dispersed rural population.

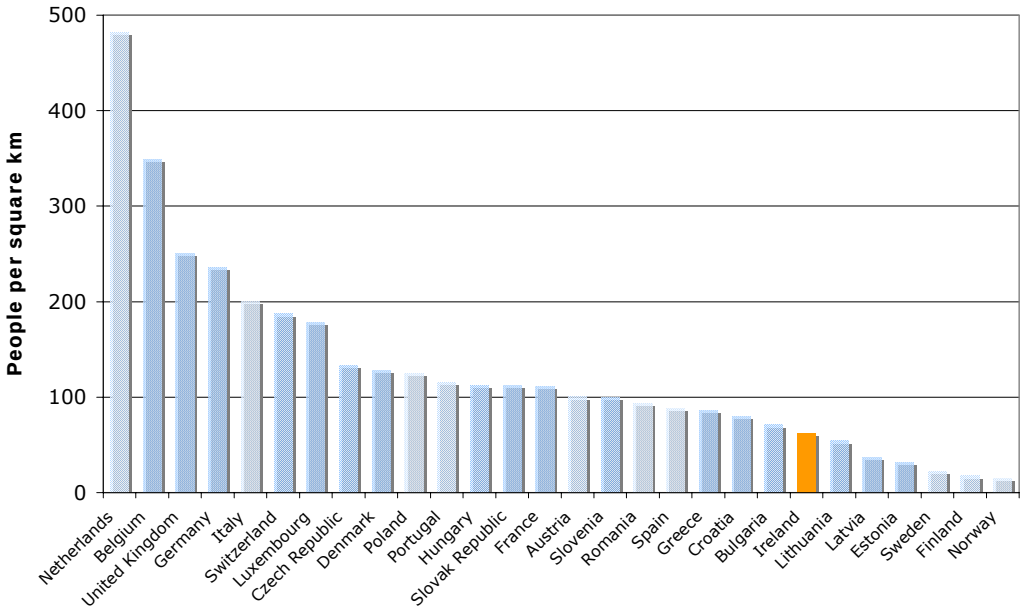
These findings suggest that comparing differences in population density between countries at an aggregate level is rather meaningless and it is inappropriate to reach a conclusion that countries are similar based on a single metric. National population density is a relatively poor measure of the distribution of the population because it ignores the extent of clustering of households within the region or country. That is, aggregate statistics do not express whether the population of an area is predominantly clustered, uniformly dispersed or distributed some other way.

This is particularly important when determining the network access cost of a country because population dispersion may have a considerable impact on costs. Countries with dense clustered populations will, by and large, be less costly to serve. This suggests that in order to accurately capture differences between countries one must utilise finely disaggregated data on population locations and it is not appropriate to compare costs across countries without somehow correcting for differences in demographics

2.2 National density

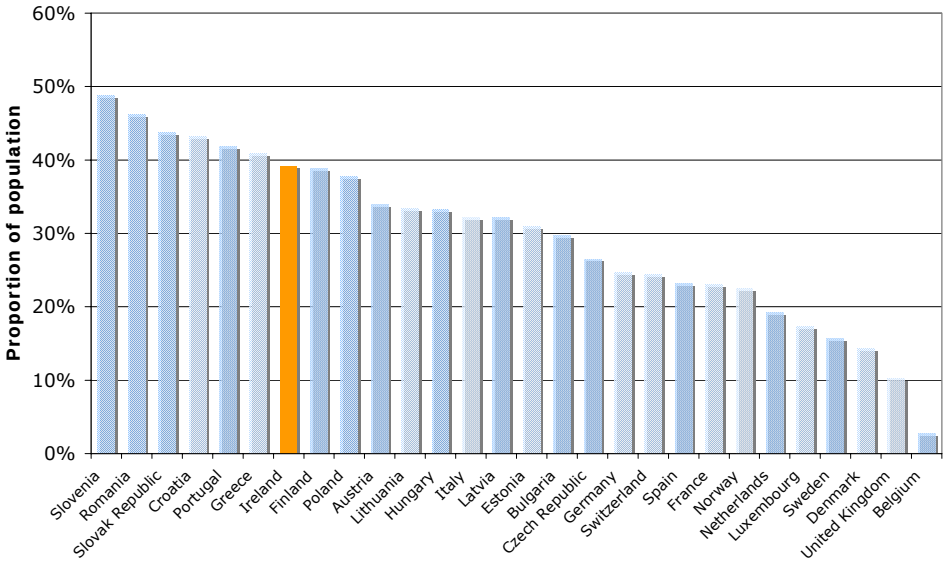
The population density in Ireland (Figure 3) is relatively low compared to other European countries. Add to that the relatively high proportion of the population living in rural areas (Figure 4), and the high-level measures suggest that not only is there low population density in Ireland, but the population is relatively more evenly dispersed across the country than is the case with other nations.

Figure 3: Population density by country



Source: World Development Indicators, 2007

Figure 4: Proportion of population in rural areas

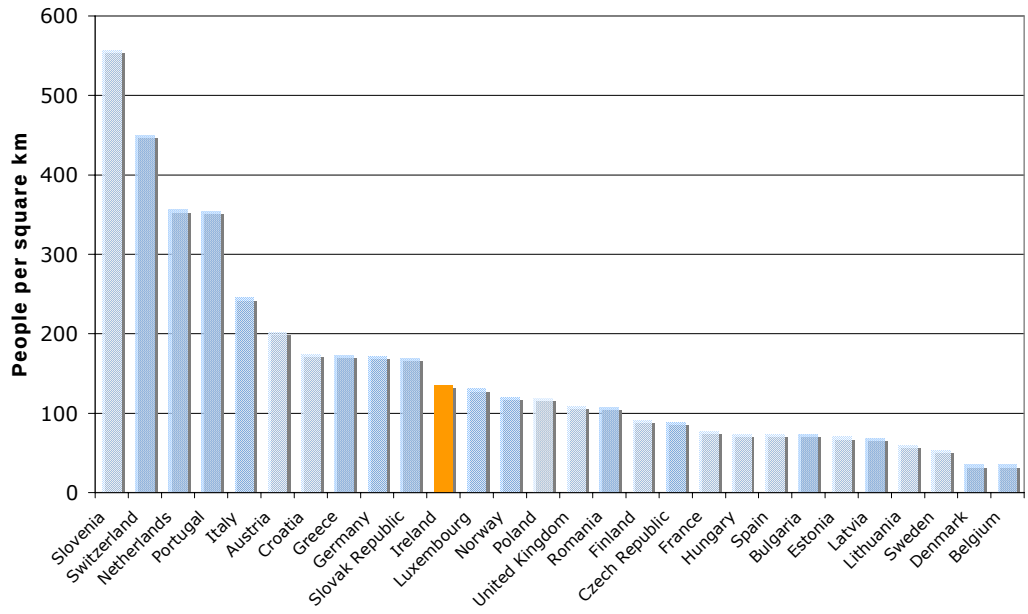


Source: World Development Indicators, 2007

Considering that the rural population makes up a large proportion of the population, rural population density is quite low (see Figure 5), although not sufficiently low to consider the rural areas should not be served by fixed telephony. This is consistent with the view that the rural population in

Ireland are relatively more evenly dispersed than in other countries, and therefore more costly to serve.

Figure 5: Rural population density

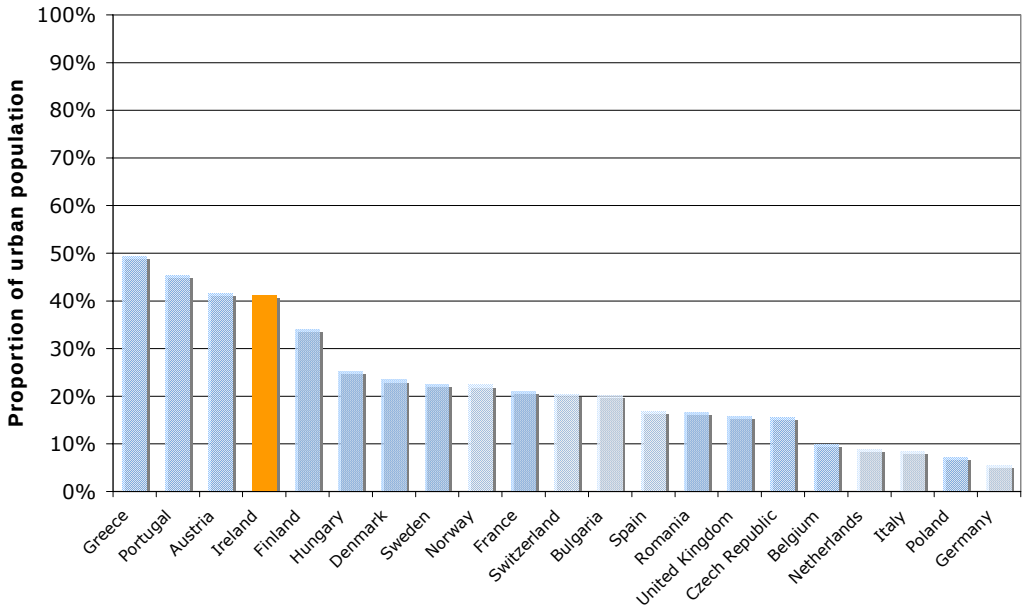


Source: World Development Indicators, 2007[1]

Figure 6 shows that the urban population in Ireland is largely concentrated within Dublin. This high degree of concentration differentiates Ireland from most other European countries, which typically have several large cities amongst which the urban population is more broadly spread. Whereas Ireland seems to have one major urban area, with the remainder of the country relatively evenly populated.

[1] The World Bank defines rural population density as the rural population per square km of arable land.

Figure 6: Proportion of urban population in largest city



Source: World Development Indicators, 2007

2.3 Disaggregate measures of population density

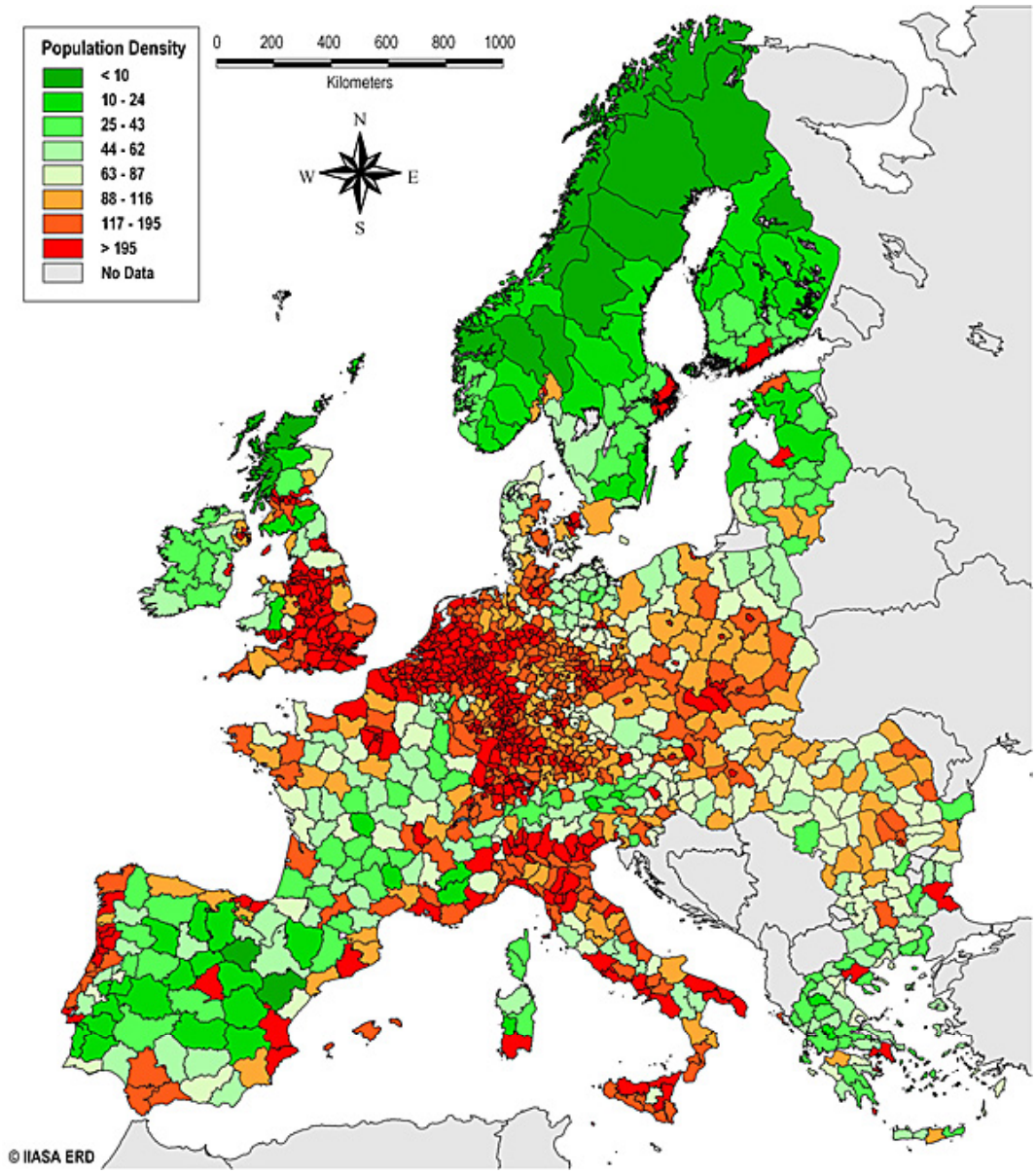
The view that in terms of population dispersion Ireland is relatively unique amongst European countries, is supported by more disaggregate data. Figure 7 shows the population density for different regions of each European country. Ireland is only one of two countries in Western Europe to have this type of pronounced population dispersion; only Ireland and Austria are characterised by an area of high population density with the remainder of the country being relatively evenly populated:

- the Benelux countries, and Germany are characterised by very high levels of population density almost throughout;
- France, Spain and Greece have several pockets of heavily populated areas separated by regions of low population density;
- Italy and much of Eastern Europe is characterised by high or very high levels of population density except for a small number of areas;
- the UK exhibits stark regional differences in population density, with the south (excluding Wales) being characterised by high or very high population density in almost all regions and the rest being characterised by low to moderate levels of population density joined by a number of urban centres;
- Norway, Sweden and Finland are characterised by one or two densely populated centres and only a small amount of the rest of the country being populated to the level where fixed line services are economically feasible;

While Au stria looks relat ively si milar t o Ir eland in t erms of popu lation density, there are a number of key di fferences that have a strong impact on the cost of providing fixed lines in one country rel ative to the other. Specifically, Irelan d i s a relat ively f lat cou ntry, whereas Aust ria is mountainous and of th e type of terrai n not amenabl e to habi tation, and as such much of these areas are not covered by fixed line operators.

This comparison h ighlights the main ch allenge in roll ing out f ixed lin e services in a cost ef ficient man ner in Ire land – w hile pop ulation den sity is low enough to make the cost per li ne high rel ative to more densely populated areas, popu lation den sity is n ot so low t hat f ixed lin e pr ovision can be foregone altogether.

Figure 7: Population density across Europe



Source: IIASA

The difference in population dispersion between Ireland and other European countries is apparent when the variance of population density is compared across countries, shown in Table 1. The relatively high variation of population density within countries compared with between countries shows that there is greater difference in population dispersion within countries than across. This highlights the need to use disaggregate data in order to capture such differences when comparing countries.

The high degree to which the population in Ireland are relatively uniformly dispersed compared to other European countries is evident when exploring within country variation. In Ireland, the within country variation in population density (434) is less than half that of the average across Europe (895). The differences is even more striking if Dublin is excluded, when variation falls to less than 2 percent of the European average.

Table 1: Variance in regional population density (population per square km) across Europe

	Median	Standard Deviation
Overall	117.5	915.5
Between country		232.8
Within country		894.5

Source: DotEcon calculation based on EuroStat data[2]

2.4 Other measures of dispersion

Anecdotal evidence suggests that the population is likely to be more evenly spread geographically within Ireland than in other European countries. Specifically, population in both urban and rural areas tends to be more dispersed than other European countries.

2.4.1 Urban dispersion

One measure of urban dispersion is the ratio of houses to apartments in an area. Eurostat reports that the highest ratio amongst European countries is for Luxembourg where there are 2.1 houses to every 100 apartments Conversely, flats and apartments make up only 15% of dwellings in urban areas in Ireland, or 667 houses to every 100 apartments[3]. In addition, apartments account for only 10.2% of all housing units in Ireland.[4] This strongly suggests that within urban areas households are more dispersed in

[2] EuroStat data for 2005 was used based on the smallest district data for each country. For example, the districts in Ireland where: Border; Midlands; West; Dublin; Mid-East; Midwest; South-East; and South-West.

[3] 2006 Census Data on Housing and Households

[4] Ibid

Ireland than common found across Europe, because the high urban density supported by large volumes of apartments in other European countries is not found in Ireland to the same degree.

2.4.2 Rural dispersion

There are stark differences in rural dispersion across Europe. In part this is a result of topography, and to some degree historical.

In taking into account how differences in topography can result in differences in dispersion, consider the High Alps as an example of an area of predominately rural areas with the population restricted to valleys because the high altitude peaks are inhospitable. Therefore, the population of the region is constrained to be less widely dispersed than in other rural areas where more of the land is inhabitable.

Ireland is a relatively flat country and population density statistics show that it has consistently low density outside Dublin. One can draw inferences from information available on the level of dispersion across areas. The most distinctive feature in relation to rural dispersion is that Ireland has a high instance of one-off housing (indeed Ireland seems to be the only country which bothers to record one-off housing); one-off houses in rural areas represented 27% of the permanent housing units in Ireland in 2006[5].

[5] 2006 Census Data on Housing and Households

3 Theoretical cost model for Ireland

3.1 Introduction

This section outlines the model used to calculate the cost per line for eircom's network. Because of several limiting factors (for example the exclusion of operating costs) highlighted in this section, the model is not intended to provide an estimate of the cost per line to be used for setting access price. Rather the model is used to provide a measure of costs that can be used to benchmark costs for a similar networks across Europe as described in the following section.

In the remainder of this section we first provide a brief overview of the model we use. This is followed by a description of the inputs specific to Ireland that are used including network build rules and customer demand data.

3.2 Modelling structure and overview

The US Federal Communications Commission's Hybrid Cost Proxy Model (HCPM) is used as the basis for modelling the cost of fixed line telecommunications in Ireland. This model has been proven to be robust; as a result it has been, and continues to be, used in a number of countries as the basis for determining universal access service costs and associated funding levels.

Although the HCPM is a model developed for the US it is suitable for modelling costs in Ireland because it can be customised to reflect the cost of a network in an individual country by adjusting input costs, geographical data and engineering assumptions. HCPM is particularly suitable for determining cost drivers, which may be unique to a country or geographic area within a country because it can use localised geographic information.

HCPM is a bottom-up, scorched-node model; the network is modelled from information on individual nodes (house and business location) first with infrastructure added to build an entire network using a set of basic equipment types and design rules. Being scorched-node means that an operator's exchange locations are retained, but the model can re-design the network from the exchange to the customer locations and between exchanges.

Scorched-node models retain some inefficiencies (such as historical investment in large exchanges which may no longer be necessary) deemed acceptable by regulators while optimising the access network. As a result regulated service prices based on such models are considered to provide operators with incentives to invest in modern efficient access technologies.

On overview of the HCPM model is show in Figure 8.[6] Like many simi lar models the HCPM consists of two independent modules that together build a theoretically effi cient network ba sed on the i nput data and networ k desi gn rules specified by:

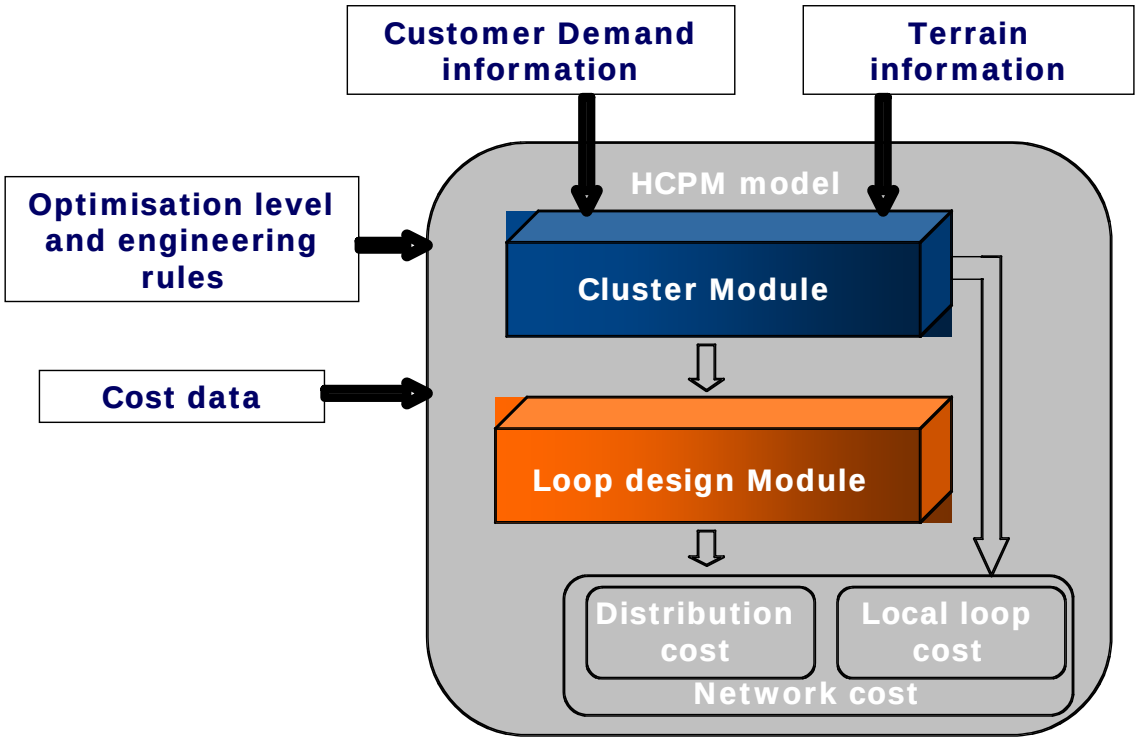
- first, a c ustomer l ocation modul e that allocates custome r locations to network cabinets and specifies the local network; and
- then, a l oop desi gn modul e that con structs the main cabl e and distribution network.

The cu stomer locat ion modu le u ses in formation on t he locat ion of each customer with data on line demand, line density and terrain type. Locations are grouped into exchange service area s (ESAs) by identifying within which ESA boundary the location lies. Then, using network design rules, customer locations are clustered to form distri bution cabi net areas wi thin each ESA with each location being assigned to an individual cabinet.

The loop design modu le u ses t he in formation f rom t he cu stomer locat ion module on the cl usters of locati ons th at defines each di stribution cabinet along with demand and customer location data to design the distribution and feeder (main cable) networks in order to complete the network.

[6] A detailed description of the HCPM m odel along with detai ls of the network desi gn process i t uses are cont ained i n the HCPM documentati on on the FCC's website: http://www.fcc.gov/wcb/tapd/hcpm/welcome.html

Figure 8: Overview of HCPM model



3.3 Modelling approach for Ireland

The remainder of this section describes the application of the HCPM model to Ireland. Here we describe the base scenario used to model the network in Ireland, and cost inputs are outlined below. Specifically, here we provide details of the demand for lines and modelling rules used to design the network:

- customer demand data;
- engineering inputs;
- optimisation settings; and
- terrain information.

3.3.1 Demand data

Precise Irish customer location information is obtained from the An Post national database of building locations. This source provides the exact reference for over two million locations throughout Ireland (recorded as Ordinance Survey grid reference) as well as an indicator of the building type (business or residential).

In order to translate the location data into an indication of demand at each exchange, information on Exchange Service Area (ESA) boundaries and penetration levels are required. Such information is available from eircom, however, the data are rather incomplete for the purpose of this study and specifically there is no information on which An Post locations are connected

to which exchanges, or the number of lines at each An post location. We therefore use a separate approach to allocate locations to ESA and specify demand. Our methodology is detailed in Annex A.

In addition to the level of demand the HCPM model uses fill factors to scale-up actual demand to allow additional lines and equipment to cater for future increase in demand, churn and faulty lines. Table 2 shows the fill factors for areas of different line densities applied in the scenario that is modelled (a fill factor of 80% indicates that an extra 20% of redundant capacity would be built into the system). These are based on our experience with modelling similar networks and advice from eircom.

Table 2: Fill factors

Lines per square mile	Feeder	Distribution
0- 5	80%	40%
5-100 80%		40%
100-200 80%		40%
200-650 80%		40%
650-850 80%		60%
850-2550 80%		60%
2550-5000 80%		60%
5000-10000 80%		60%
10000 or more	80%	60%

Source: Network Strategies

3.3.2 Engineering inputs

There are several key inputs into the model, which are specified in Table 3. These settings have been selected to ensure the estimate of network cost reflects the current limitations of network infrastructure and build rules currently achievable in Ireland. Several are based on inputs used in eircom's own cost model and so should be largely uncontroversial.

Two of the key inputs, maximum copper loop distance (km) and maximum distribution cabinet size (number of lines) are the principle factors that determine the architecture and to some extent the technologies used in the access network. After discussion with eircom the maximum copper loop length is limited to to 6.75km. As a result the maximum combination of feeder and distribution copper cable distances from an exchange to a customer location cannot exceed 6.75km. From our experience with modelling access networks for other countries, we note that distribution cabinets that are placed a long way from the exchange may cause this rule to be violated. In that case, the model will provision an active transmission system (PCM over copper or fibre) to the remote cabinet that will be included in the cost of the network.

With regard to cabinet size, we note that eircom's actual cabinet sizes vary considerably. For the purposes of the scenario modelled, the nominal maximum cabinet size has been set at 500 lines, although this limit can be exceeded in some cases. In general, the model is likely to place fewer cabinets in an ESA than have actually been built, due to network optimisation.

eircom has subsequently advised that planning rules will require a cabinet for every 250 lines on the distribution side and that a factor of 1.1 is applied to the 250 giving 275 - resulting in a 300 pair cable being connected to the main distribution side of the cabinet. The model has been tested with a range of small and large cabinet design rules and found to be relatively insensitive to these.[7] Small cabinet sizes do result in more main cable being deployed, but there is little saving in distribution costs.

Table 3: Key engineering inputs

Rule	Current scenario
Maximum copper loop distance	6.75 kilometres
Nominal maximum cabinet size	500 lines
Maximum copper drop length	250 metres
Copper cable gauge crossover distance (0.4mm to 0.63mm diameter)	3.5 kilometres
Copper based cabinet PCM systems	Disabled
Fibre based cabinet PCM systems	60 channels
Distance type	Rectilinear

Source: Network Strategies

A further requirement in the engineering inputs is the set of rules governing the mix of technology used for cable mix. For main cable we understand from eircom's cost model that no overhead provisioning of cable is permitted.[8] Therefore, all main cable is designed and cost as underground.

Table 4 shows the technology mix for distribution cable for areas of different line density. In Ireland direct buried cables are not permitted, leaving underground and overhead the only options. In less densely populated areas, aerial cable is generally used in preference to burred cable because it is typically cheaper to install albeit slightly more expensive to maintain.

[7] The overall impact on calculated costs using different cabinet size rules is no more than 3%.

[8] To test whether allowing overhead cable would alter the results a model was run that allowed for 50% aerial main cable in rural areas. The estimated cost did not alter considerably.

Table 4: Distribution cable technology mix

Lines per square mile	Underground cable	Aerial cable
0- 5	10%	90%
5-100 10%		90%
100-200 20%		80%
200-650 20%		80%
650-850 75%		25%
850-2550 75%		25%
2550-5000 90%		10%
5000-10000 90%		10%
10000 or more	90%	10%

Source: Network Strategies

3.3.3 Optimisation setting

In the HCPM model, clustering optimisation can be set at various levels by selecting from different clustering methodologies. For high cost, low density areas, the clustering approach makes little difference to the overall cost per line. For the purposes of this model, we have adopted the divisive clustering algorithm, which is the FCC default. However, the specific methodology used is unlikely to have a considerable impact on the estimate of cost the model produces. In general our experience suggest that any variance in costs that arise from the selection of clustering algorithm is considerably less than that which come about from selecting different engineering and terrain inputs.

3.3.4 Terrain information

Terrain inputs, along with line density affect the cost of trenching and overhead cable placement chosen for each distribution cabinet area in the model. The terrain methodology in the HCPM model requires that operators, or their installation contractors, have detailed knowledge of local terrain cost drivers (such as bedrock depth, soil texture, water table depth and ground slope). Although we understand that detailed terrain information is available for Ireland, neither eircom or its contractors have sufficiently detailed cost data to allow a correlation of costs with terrain. The only cost driver recognised by eircom trenching contractors is geotype, based on line

density.[9] For this reason, we have restricted the model to use only a single `Normal' terrain type, populated with eircom's urban and rural installation costs. Table 5 below lists the default cabinet area settings for the `Normal' terrain type.

Table 5: Terrain setting for HCPM model

Costs	Bedrock	Hardness	Soil Texture	Water Table	Min Slope	Max slope
Normal	60 inches	Normal	0	5 feet	1	1

Source: Network Strategies

3.4 Cost inputs

The HCPM model has several cost inputs, which together with the network design rules discussed above determine how the theoretical network is build. In general, the HCPM seeks to minimise networks costs given the design rules and location of the population. The cost inputs fall into four categories, which are discussed below:

- cable costs;
- cable infrastructure costs;
- distribution costs;
- adjustments to cost for sharing of facilities; and
- operating costs and indirect mark-ups.

3.4.1 Cable costs

The HCPM model designs access networks incorporating overhead, underground and direct buried copper or fibre cables. We understand that there is no opportunity to use direct buried cable in Ireland, so these have been removed from the model.

In the HCPM model cost of cable includes material, placing, jointing and engineering for copper and fibre separately, but do not include the costs of overhead or underground structure (such as poles or trenches), which are discussed below.

Cable costs have been derived from information provided by eircom and are in line with costs used in eircom's own cost model. This information is commercially sensitive and so no detail is provided here. However, it is our

[9] eircom's cost model has 5 geotypes defined by line density. Geotype 1 – more than 2,550 lines/mile^2; Geotype 2 – 650 to 2,550 lines/mile^2; Geotype 3 – 100 to 650 lines/mile^2; Geotype 4 – 5 to 100 lines/mile^2; Geotype 5 – 0 to 5 lines/mile^2.

understanding that these data have been provided to ComReg, and therefore we consider that the costs are accurately captured.

3.4.2 Cable infrastructure costs

The costs of trenching and overhead structure typically vary with terrain type and line density. The costs used in the scenario modelled are shown in Table 6.

Data on cable infrastructure costs provided by eircom categorise those costs by surface type (carriage, footway or verge) and geographic location (Dublin and other areas). To obtain trenching costs suitable for the HCPM model, information from eircom's own cost model is used. Data on `surface by geotype' are combined with `trenching cost by surface type'. In addition, long-term damage is allowed for at the rates of €17.06 per metre for carriageway, €13.55 per metre for footway and €3.86 per metre for verge. Manhole, chamber and duct costs are additional to trenching structure and are input separately.

Similarly estimates of overhead infrastructure costs are obtained from eircom's cost model, which assumes 50m between poles in all areas, therefore the cost is independent of line density.

There is no evidence from data provided by eircom that aerial cable structure costs vary with line density. Our experience is that we would expect overhead structure to be less expensive in rural areas, but at this stage a uniform cost has been implemented. As a result, overhead cable will typically be used where it is permitted.

Costs for buried structure have been set to match underground. Normally these would be considerably lower than an underground costs. The HCPM model is currently set to avoid buried structure at all times, but the input category is retained for flexibility and for potential modelling of scenarios which do allow forms of direct buried structure.

Table 6: Cable infrastructure costs per foot

Lines per square mile	Underground & Buried		Aerial	
Feeder	Distribution	Feeder	Distribution	
0-5 €15.05	€15.05	€2.36	€2.36	
5-100 €18.18	€18.18	€2.36	€2.36	
100-200 €19.74	€19.74	€2.36	€2.36	
200-650 €19.74	€19.74	€2.36	€2.36	
650-850 €21.30	€21.30	€2.36	€2.36	
850-2,550 €21.30	€21.30	€2.36	€2.36	
2,550-5,000 €30.54	€30.54	€2.36	€2.36	
5,000-10,000 €30.54	€30.54	€2.36	€2.36	
10,000+ €30.54	€30.54	€2.36	€2.36	

Source: eircom, Network Strategies

3.4.3 Distribution point (DP) and cross connect cabinet costs

Network Strategies has performed the initial cost modelling using estimated cabinet costs and design rules as these were not specifically available from the eircom data or the existing cost model (which appears to assume that all DPs are 20 lines).

Subsequently, eircom has provided more detailed data and we have found that substituting this into the model makes little difference to the exchange area estimated costs. Overall, the model results are relatively insensitive to cabinet costs. DP costs are more important due to the large numbers deployed in the network, but again the model is relatively insensitive to reasonable variations in their costs.

3.4.4 Sharing

Two types of cost sharing are commonly allowed for in telecommunications cost modelling:

- costs shared between a telecoms company and other utility operators (such as pole sharing with electricity); and
- costs shared between access and core networks.

We understand that there is no significant sharing between eircom and utilities, but that some sharing has been identified between access main cables and the core network. Therefore cost savings that might come about through sharing resources amongst utilities are excluded. For allocating costs between the core and access networks, data from the eircom cost model on the estimated shared duct distances is used. The general scheme for sharing of structure is set out in the table below.

Table 7: Core/Access sharing - proportion of infrastructure used by the access network

Lines per square mile	Underground	Aerial
0-5 73.47%		100%
5-100 80.04%		100%
100-200 89.76%		100%
200-650 89.76%		100%
650-850 95.91%		100%
850-2,550 95.91%		100%
2,550-5,000 98.48%		100%
5,000-10,000 98.48%		100%
10,000+ 98.48%		100%

Source: eircom, Network Strategies

3.4.5 Operating costs and indirect mark-ups

The HCPM model can be used to calculate annualised costs of assets using a set of annual charge factors, one for each of the key asset types. The annual charge factors are intended to take into account:

- depreciation and cost of capital, often calculated using a tilted annuity formula that takes asset lives, price tilts and time to build into account;
- operational costs calculated as a percentage of capital cost; and
- allowable indirect mark-ups of all kinds.

We do not attempt to calculate or implement specific annual charge factors for Ireland. Therefore we do not require operating costs and so the calculated costs capture capital costs only.

If annual costing was to be implemented, the model could be used to calculate annualised costs for lines in all parts of the network. However, in our experience, annual costs calculated in this way are highly sensitive to factors such as cost of capital and indirect mark-ups. Furthermore for the purpose of this study, annual costs may not be as useful as capital costs for identifying any systematic differences that make access network costs in Ireland different to those in other comparable countries.

4 Comparison of network access costs across EU

In this section, we first estimate a model of network access cost using the cost data from the HCPM model described in the previous section and information which captures the demographics of a country. That model is then used to predict the cost per line for a similarly designed network using data from other European countries. In essence, we estimate the cost per line for our HCPM network cost model for Ireland as if the population was distributed as it is in other countries. Finally, we compare the costs for different countries, and examine why the differences observed have come about.

The results highlight that, when input costs and network build rules are restricted to be comparable across countries, there remains considerable differences in the cost of access between countries which is attributable to differences in demographics. Specifically, the model of network cost predicts that given the characteristics of all other European countries, the cost per line in Ireland is considerably larger than the EU average and also larger than most other individual countries. This evidence suggests that the unique dispersion of the population in Ireland greatly adds to the cost of providing fixed line telecommunications. As a result, using benchmarks from other countries to set access prices in Ireland would lead to an inappropriately low price that would not compensate sufficiently eircom for the costs it incurs.

The model used to predict costs in other countries, along with the results are discussed in more detail in the remainder of this section, which is structured as follows:

- first the data used are described and some summary statistics provided;
- next the econometric model used to estimate network costs is outlined and we describe how it is used to predict costs; and
- finally the results of that model are assessed.

4.1 Data for model and predictions

The calculations of cost per line for each location in Ireland from the HCPM model described in Section 3 are used in conjunction with geographic data provided by MapMechanics.

MapMechanics provided the bespoke geographic data using two primary sources of data:

- GFK Purchasing Power data and Boundary Map Pack for the EU-15 countries excluding Greece for 2007; and
- Navteq Premium Sheets Map data for the EU-15 countries excluding Greece 2007.

The GFK data for Ireland contains information on demographics and purchasing power for 3,440 administrative boundary areas with an average

population of 1,233 per area. From the GFK data we use information on the number of households and size of each area.

MapMechanics added road distance to the GFK data using the Navteq map data in combination with the GFK boundaries. Road distances for each GFK boundary were calculated for five categories of road available in the Navteq data, which approximately correspond to:

- motorways (level 1);
- primary roads (level 2);
- major trunk roads (level 3);
- minor trunk roads (level 4); and
- local streets[10] (level 5).

The HCPM network cost model calculates the costs for each cabinet. However, using the locations of cabinets rather than individual locations may not properly assign costs to the respective GFK boundaries because some locations may reside in one GFK boundary, while the cabinet they are attached to is located in another. Therefore, in order to accurately merge the data on cost per line in Ireland with the geographic data each location from the network cost model is placed into a GFK boundary according to its latitude and longitude. Therefore locations connected to the same cabinet may be assigned to different GFK boundaries.

Descriptive statistics of the data used for the model and predictions are provided in the table below, more detailed descriptive statistics are provided for each country in Annex B.

[10] Roads which are included in Navteq's database but unclassified are also included in this level.

Table 8: Descriptive statistics of raw data

	Ireland		Other countries	
	Mean	Median	Mean	Median
Cost per line[11]	5386	5206		
Household density*	292.2	8.81	424.5	27.2
Street density**				
Total	3096.8	1437.9	4299.2	2578.3
Level 1	125.7	0	100	0
Level 2	95.2	0	145.3	0
Level 3	237.8	7.34	306.2	97.9
Level 4	286.5	50.2	525.1	371.4
Level 5	2355.3	1190.8	3180	1790.1
Area•	20.1	19.2	29.9	12.1

Source: DotEcon based on data provided by MapMechanics and Network Strategies
* Households per km^2
** Metres of street per km^2
• km^2
Data presented in this table use km^2 as the unit of area, in the model estimated metres square is used instead.

4.2 Econometric model

Cost per line is modelled using a log linear ordinary least squares regression, with demographic variables as the explanatory variables. The natural logarithm of each variable is used to reduce the impact any outliers may have on the estimated coefficients and to correct for any heterogeneity in the data. Where a variable can take on the value of zero, one has been added to ensure that observations where that happens (either for the estimation or prediction of costs per line in other countries) are included.

Two separate models have been used the first:

$$\ln(cost_i) = \alpha + \beta^1 \ln(houseden_i) + \beta^2 \ln(1 + streetden_i) + \beta^3 \ln(area_i) + e_i$$

where the cost per line in each GFK boundary ($cost_i$) is explained by the number of houses per square of metre within the GFK boundary ($houseden_i$) which captures cost savings which arise from more households being included is a given area. In addition, the street distance in meters as a proportion of the area ($streetden_i$) is included to allow for cost saving that

[11] Cost per line is from the HCPM model and therefore only available in the raw data for Ireland

come about because the more roads that are available the more cost effective network building may be (but conversely, a large road network could also be indicative of more dispersed population which may be more costly to serve). Finally, the size of an $area_i$ is included because not all GFK areas are identical in size and because large areas are more likely to capture clusters of locations and therefore benefit from economies of scale.

The second model is identical to the first with the exception that it includes street density for each of the different levels of road categorised by Navteq (level one corresponding to motorways, and level five to local roads). This allows the ambiguous impact of roads (i.e. that more roads are indicative of a more dispersed population, but also contribute costs savings by facilitating cable placement) to be examined in more detail:

$$\ln(cost_i) = \alpha + \beta^1 \ln(houseden_i) + \sum \beta^{2\,j} \ln(1 + streetdenlevel_{j_i}) + \beta^3 \ln(area_i) + e_i$$

4.3 Results and estimates for EU-15

The estimated coefficients, respective p-values from whites standard errors[12] for assessing significance in parentheses and associated test statistics for the econometric models of cost per line are shown in Table 9. The coefficient on household density is negative in both models, indicating that areas where locations are more densely packed can be served at lower cost. Similarly, the coefficient on street density in model one is negative which suggests that more roads reduce the cost of building out a fixed line network because they offer greater flexibility for cable routing.

The breakdown of roads by type provides further insight. Level one roads (typically motorways) are unlikely to be used for routing cable because they are often difficult to gain access to. Therefore the large and negative coefficient on level 1 street density may at first seem counter intuitive. However, it is likely that the presence of motorways results in households and particularly business presences clustering close to junctions (for example in business parks).[13] Therefore the negative coefficient is explained by reductions in costs that come about because of the reduced dispersion of locations in those areas relative to others. In many, but not all cases level 2 roads may be unsuitable for routing cable, which may explain why the coefficient on it is negative but insignificant. Level 3 and 4 roads are likely to be suitable for routing of cable, hence the negative, significant and similar coefficient on both of those variables. Level 5 roads are more likely to be in place for access to specific households and businesses than for transit. As a result they are less likely to offer possible cable routes for connecting dispersed locations. Therefore more level 5 roads within an area suggests

[12] White standard errors are an alternative measure of the standard error in a regression that compensate for heteroscedasticy. See Greene W, Econometric Analysis, Prentice Hall, 2000.

[13] Alternatively, motorways may be build to connect areas with highly clustered households or businesses.

that the population is relatively more dispersed. The positive coefficient on level 5 street density is consistent with the view that, greater population dispersion adds to the cost of fixed line provision. However the lack of significance may suggest that it is a poor proxy for dispersion.

Table 9: Econometric models of cost per line

	Model 1	Model 2
ln(1+*houseden*) -0.337		-0.337
	(0.000)	(0.000)
ln(1+streetden) -9.314		
	(0.050)	
level1		-91.0
		(0.000)
level2		-18.7
		(0.279)
level3		-46.8
		(0.001)
level4		-43.3
		(0.001)
level5		6.76
		(0.231)
ln(area) -0.147		-0.173
	(0.000)	(0.000)
Constant 7.607		7.581
	(0.000)	(0.000)
R^2 0.733		0.739
Joint test of significance	0.000	0.000
Number of observations	3,439	3,439

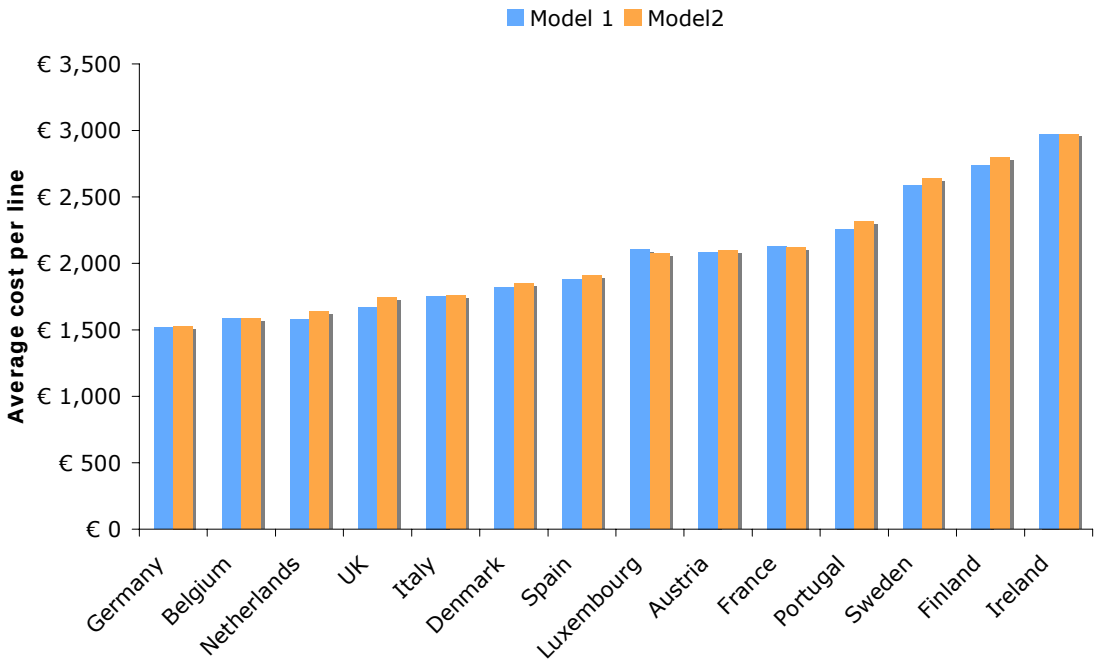
Source: DotEcon

The estimates of the coefficients are used to predict the cost per line for each GFK boundary in the other European countries by inputting data for the GFK areas into the model for each country respectively. As a result, the cost per line is dependent only on the demographics of an area, not which particular country and area it is in. Therefore, differences in the estimated cost per line for an individual area, or once aggregated an individual country, captures the extent to which differences in demographics influence network costs. To calculate the average cost per line for each country, the cost per line for each GFK area within a country is weighted by the number of households in an area. The results for both models are shown in Figure 9. The predicted cost for Ireland in both models is not considerably different

from that produced by the HCPM cost model. Therefore our approach seems robust.

The cost of access in Ireland is considerably larger than in many other countries. Particularly, countries with relatively uniform dense populations are predicted to have large cost advantages over Ireland on the basis of differences in demographics. Even countries which at a national level are considered to be relatively sparsely populated typically have lower predicted cost than Ireland. This is because the population in sparsely populated countries is not uniformly spread across the country but tends to be concentrated within specific areas. As a result large swaths of the lightly populated countries remain unpopulated or extremely sparsely populated and are therefore not served by the fixed network.

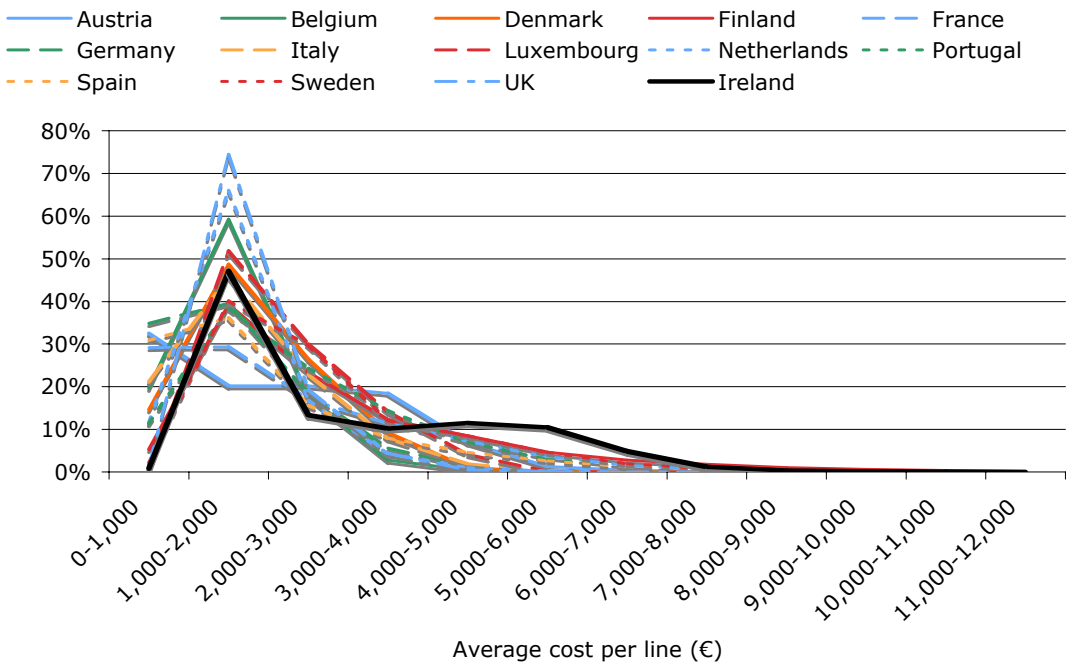
Figure 9: Predicted average cost per line across Europe



Source: DotEcon

Figure 10 shows the proportion of lines that fall into each cost category for all countries. Relative to other countries, Ireland has few very low cost lines (€0-€1,000), which is consistent with a lower proportion of the total population living in urban areas and the urban areas in Ireland being less densely populated than other countries. In addition, the profile of lines in Ireland does not display the same drop in the proportion of lines after €3,000 that is evident in all other European countries. In fact, Ireland has a larger proportion of above average cost lines that cost between €4,000 and €7,000 than any other country, which is consistent with large parts of rural Ireland being relatively densely populated compared to rural areas in other countries.

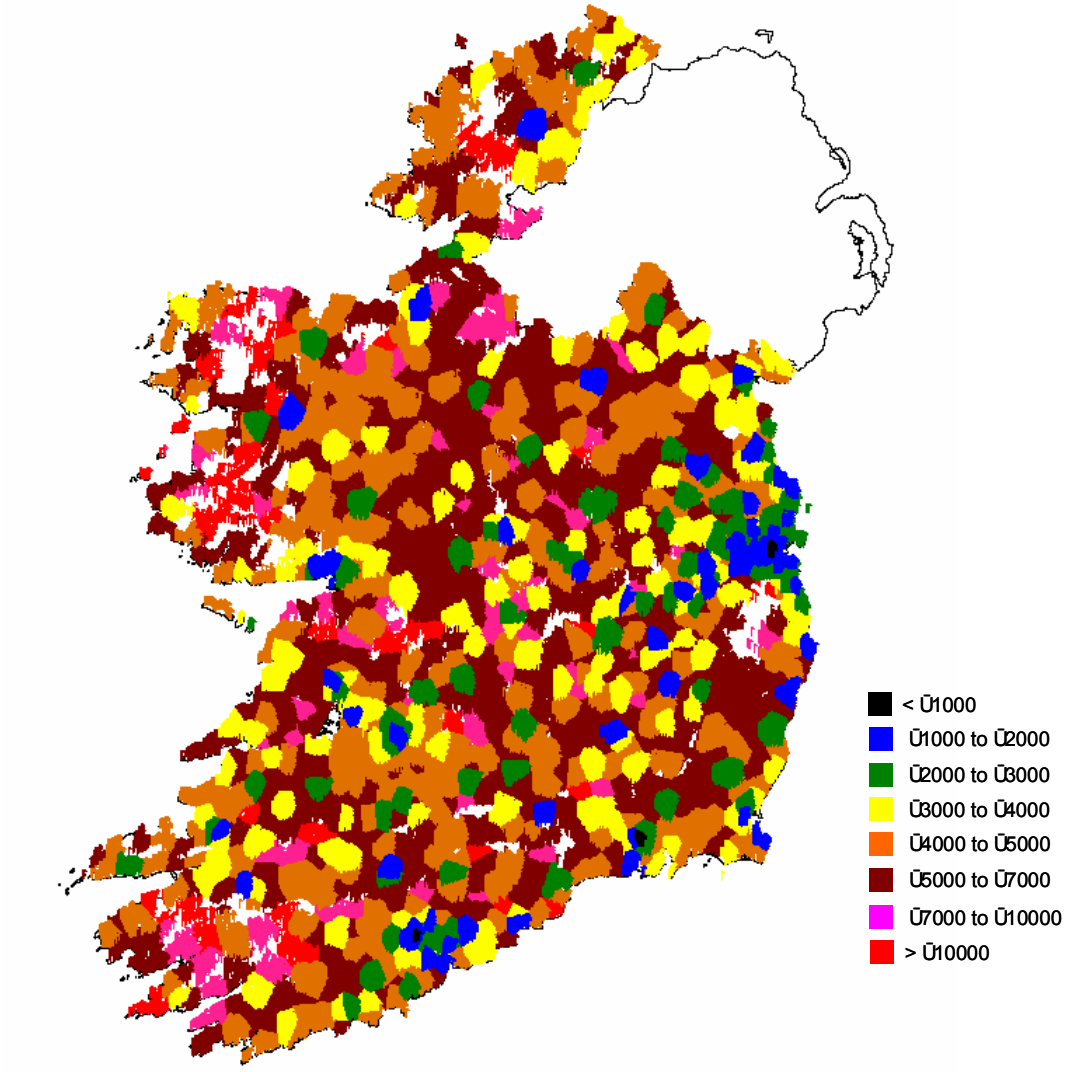
Figure 10: Proportions of lines by predicted cost per line (up to €12,000)



Source: DotEcon

The importance of the medium cost areas in Irelan d is evide nt from examining data from the HCPM m odel, see Figure 11. Much of Ireland is covered by areas of medi um cost, with fe w areas of very low cost (and typically a large numbe r of lines) and even less areas of very high co st (and typically few lines).

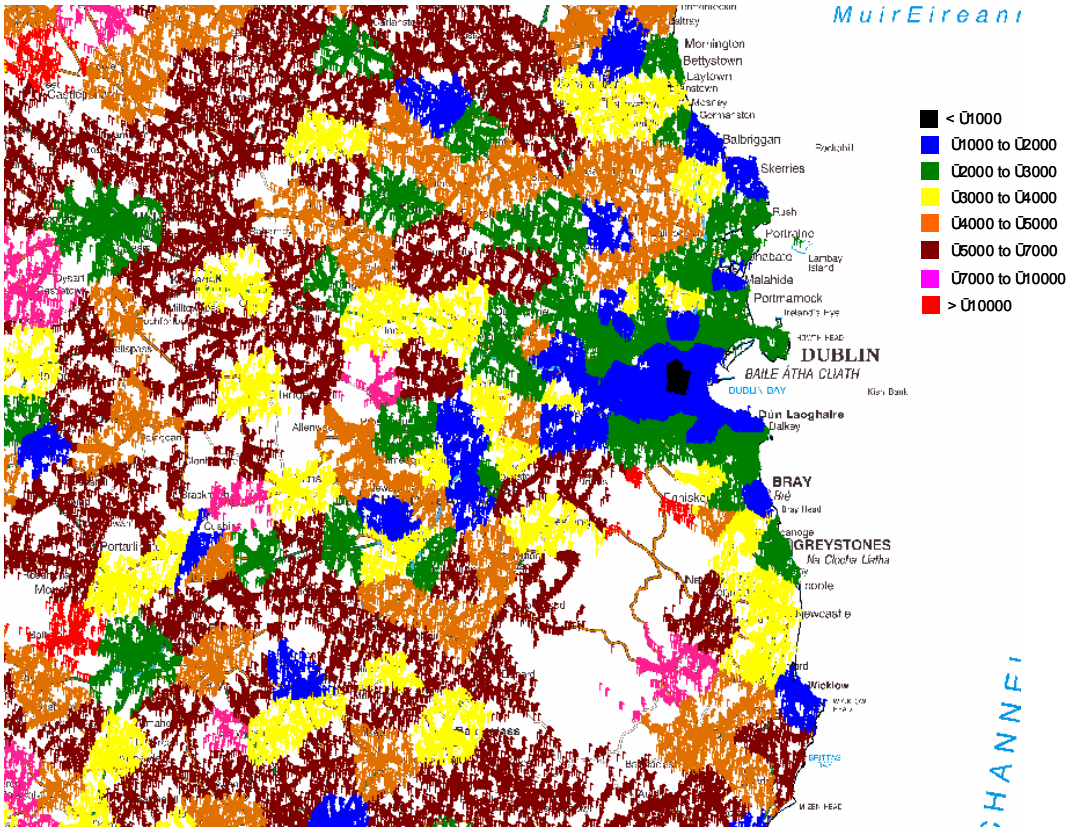
Figure 11: HCPM cost per line across Ireland



Source: Network Strategies

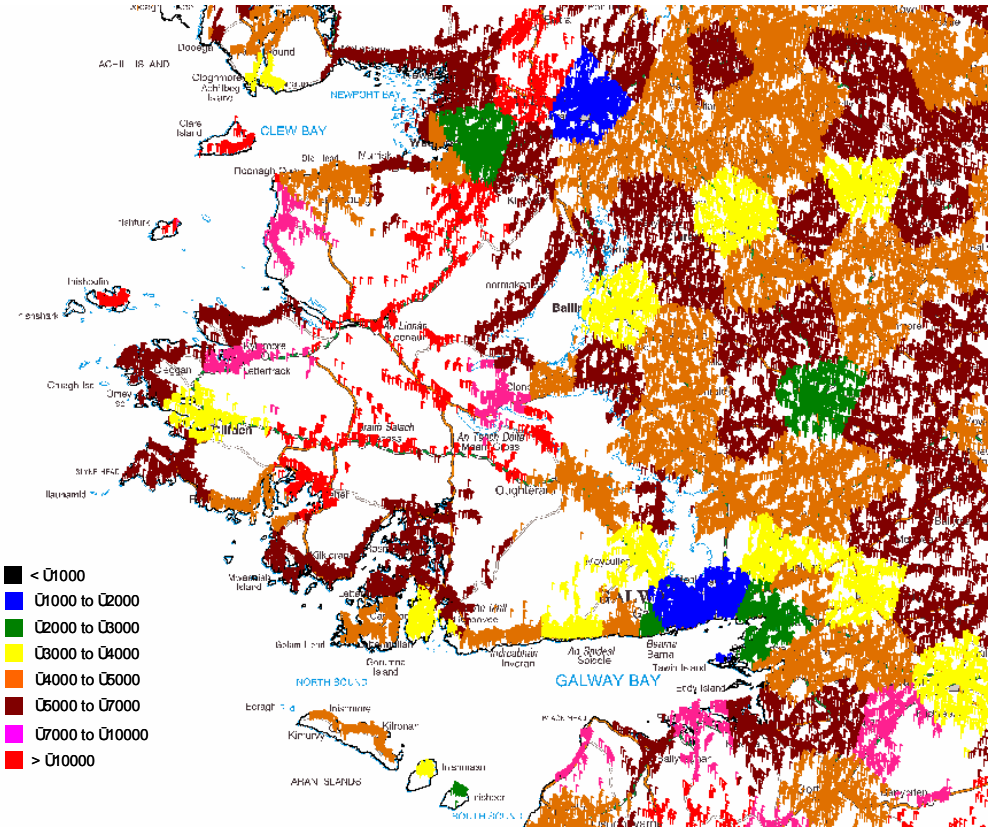
Even within urban areas, there are large pockets of moderate costs, as shown in Figure 12. Similarly, rural areas, which typically have the highest costs lines, many lines fall within the medium cost categories, see Figure 13.

Figure 12: HCPM model cost per line around Dublin



Source: Network Strategies

Figure 13: HPCM cost per line around Galway Bay



5 Conclusion

The evidence presented in this report, both on differences in demographics and from predicting network costs across Europe, suggests that the unique population dispersion in Ireland is largely responsible for contributing to fixed network costs that are greater than those in other EU15 countries. As a result, extreme caution should be used when considering any benchmark comparison of network access costs based on other European countries. Without taking account of differences in demographics, such a comparison is likely to be flawed and to underestimate the true cost of network provision in Ireland.

Ignoring differences in drivers of cost between countries and seeking to impose a regulated access price for Ireland at or close to the European average would jeopardise the sustainability of investing in fixed line networks in Ireland (it may also impede platform competition). Allowing a return sufficient to recoup the cost of network provision is vital to ensure that the network continues to grow in Ireland, that new services are brought to the market swiftly and that benefits from platform competition are not stifled.

Annex A: Modelling exchange area input files

A.1 Introduction

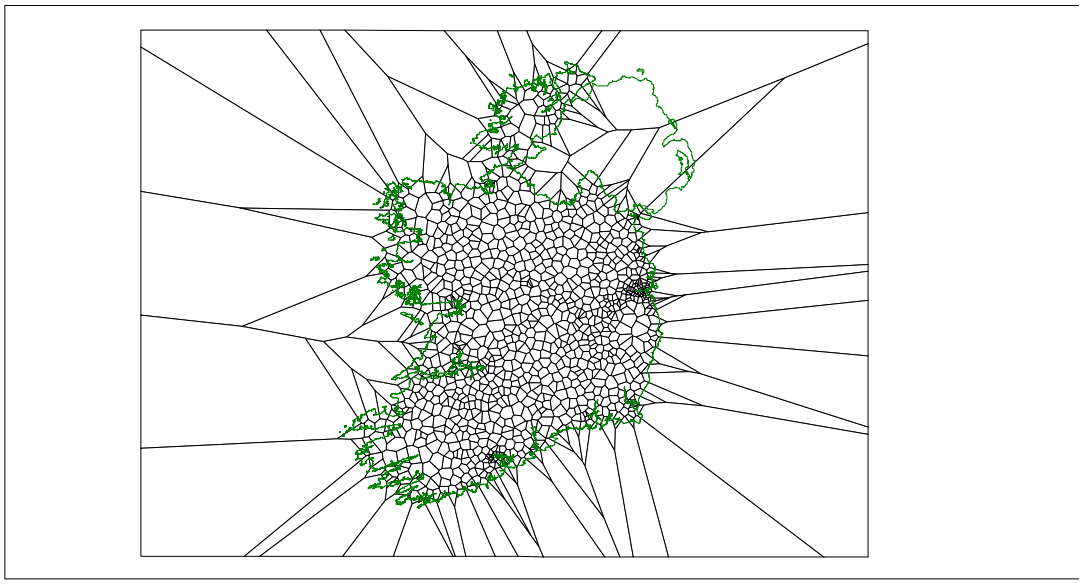
In order to allocate customer locations to their serving exchange area, it is necessary to identify the ESA boundaries. Although considerable exchange location and boundary information was available from eircom, we found that, in many cases, it could not be used without refinement to exclude cases of multiple exchanges within a single boundary and exchanges with unmapped boundaries.

A.2 Artificial exchange boundaries

In consultation with eircom, it was decided that Network Strategies would develop a proxy set of exchange boundaries based on a refined list of 1172 exchange locations. This was achieved using Voronoi polygons which effectively allocate each AN Post building location to its nearest exchange site.

Figure 14 below illustrates the artificial exchange boundaries defined by creating a Voronoi polygon around each exchange location (within a constraining boundary larger than Ireland).

Figure 14: Voronoi polygon boundaries

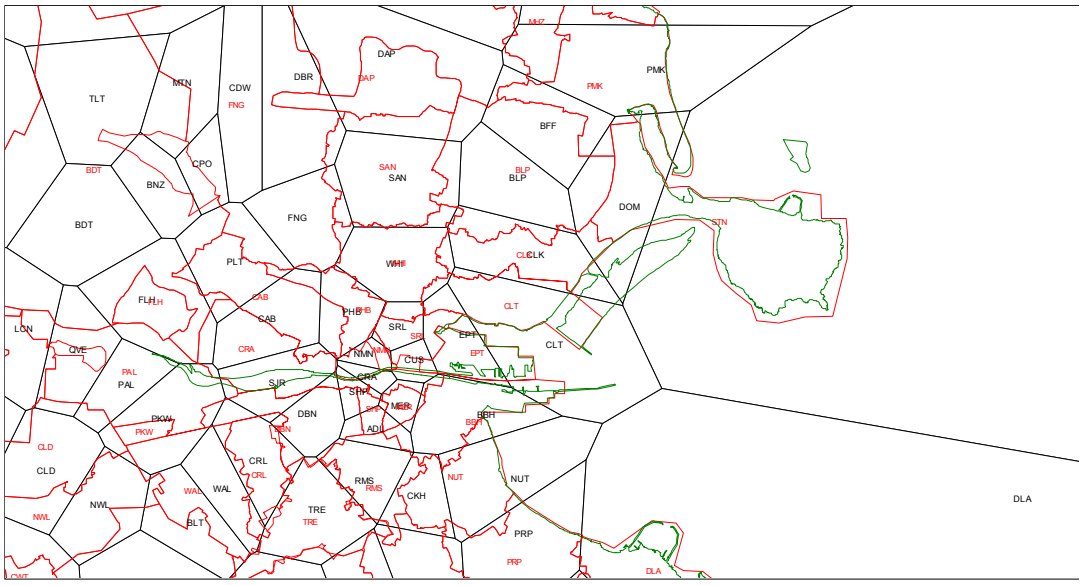


Source: Network Strategies

When examining the relationship between Voronoi generated boundaries and real exchange boundaries, we find that, in many cases, there is a reasonable match. However, significant variations can occur in high line density areas.

Figure 15 below shows the Voronoi boundaries (black lines and labelling) and known exchange boundaries (red lines and labelling) for an area near Dublin. The green boundary represents the Irish coast line.

Figure 15: Example of urban Voronoi boundaries



Source: Network Strategies

The Voronoi polygon labelled DOM (DONAGHMEDE) is an extreme example of an exchange area which does not match well with the real boundary. This is confirmed by comparing the building and line counts for DOM and neighbouring area STN in Table 10 below.

Table 10: Detail for DOM and STN areas

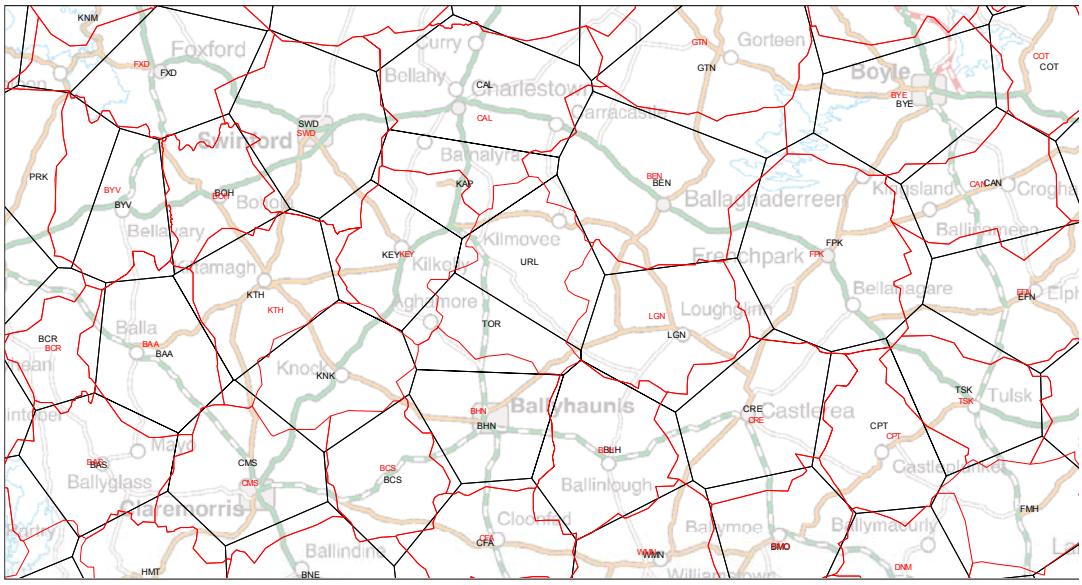
Area code	*Working paths*	*Working telephone lines*	*Voronoi polygon building count*
DOM	67	25	9 616
STN	11 038	10 811	4 243

Source: eircom, Network Strategies

It is clear that DOM has captured a large number of locations which should be counted in STN. This phenomenon is unlikely to significantly affect the modelled cost per line in high density urban areas, but creates difficulties when using actual exchange line numbers to determine demand.

In rural areas, the relatively low density of housing and spread of exchange locations creates a better match with Voronoi polygons as illustrated in Figure 16 below:

Figure 16: Example of boundaries in rural areas



Source: eircom, Network Strategies

Line and building counts for a sample of exchange areas are compared in Table 11 below.

Table 11: Detail for a sample of rural areas

Area code	*Working paths*	*Working telephone lines*	*Voronoi polygon building count*
BEN	1 854	1 797	3 129
GTN	736	767	1633
LGN	583	578	1 152
FPK	742	791	1 553
CRE	1 653	1 584	2 044

Source: eircom, Network Strategies

In general actual exchange line counts are 50% to 80% of the Voronoi building count for these areas, emphasising the difficulty of using building count as a proxy for telecommunications demand. To confirm that this is not an error introduced by the artificial boundaries, we calculate the building counts for the actual exchange boundaries in Table 12 below.

Table 12: Comparison of Voronoi and actual building counts

Area code	Voronoi polygon building count	Actual exchange area building count
BEN	3 129	3 241
GTN	1 633	1 540
LGN	1 152	1 258
FPK	1 553	1 637
CRE	2 044	2 226

Source: Network Strategies

In all cases, the Voronoi estimates for these rural exchange areas are within 10% of the correct building count.

A.3 Estimating demand for Voronoi exchange boundaries

In EU and OECD statistical network data we note that the term "telephony path" is most commonly used to define a narrowband (64kbit/s) connection independently of the technology used to provide the path. This means that, with the use of basic and primary rate ISDN, there may be many more paths in an exchange area than there are physical copper lines. In the line count data provided by eircom to ComReg, there are around 1.78 million working paths and 1.77 million working telephone connections. We had originally assumed that a significant proportion of these paths were derived through ISDN, but further information, in particular the eircom cost model suggests that these are all metallic paths.

The eircom model has a total of over two million metallic access paths for 2007 which we believe includes "dead paths", which are principally exchange MDF terminations that do not progress beyond the exchange's local ducting and should not be modelled.

In high density urban areas, the metallic path numbers typically exceed the numbers of buildings. This is normally due to multi-tenanted buildings and businesses with multiple lines. However, modern urban areas also feature direct building fibre access, providing large capacities and many "telephony paths" which would not be counted as metallic paths. Also, urban areas feature significant levels of fixed/mobile telephony substitution which may also affect a count of working metallic paths.

Overall, the numbers of working metallic paths in an urban area is likely to be a function of both demand (which we must approximate using building numbers and locations) and substitution with competing modern infrastructure.

In rural areas we expect building numbers to exceed line numbers, as has been observed in Table 11 above.

To determine a reliable set of scaling factors for the conversion of building numbers to line numbers, it has been necessary to analyse a sample of exchange areas with known real boundaries and "geotypes". These exchanges are a sub-set of the 69 areas analysed by eircom in 2003 (listed in Annex B). Reliable exchange boundaries were available for 48 of the

sample areas and analysis of these areas provides the weighted average lines per building in Table 13 below.

Table 13: Average lines per building

Geotype	*Average lines per business*	*Average lines per residence*
GEO 1 Major City	7.08	0.82
GEO 2 Urban	9.38	0.78
GEO 3 Urban Rural	2.17	0.54
GEO 4 Rural	0.93	0.52
GEO 5 Very Rural	0.42	0.48

Source: Network Strategies

We note that the number of copper lines per business is lower in GEO 1 than in GEO 2. Although this may appear to be an anomaly, it is what we have expected due to the common provision of voice and other services over fibre in metropolitan areas.

A.4 Generating the model input files

The process followed in generating the model input files is as follows:

- select the building locations within each Vor onoi exchange boundary and assign them to the exchange, thereby generating a set of raw model input files
- run the model for the entire country (1172 exchanges) and extract location density data for each exchange. This is produced using the area of a convex hull incorporating all the location points in the exchange, rather than the full area encompassed by the exchange boundary. The convex hull is preferable as it only measures the populated area in an ESA boundary which may also include lakes, mountains and other uninhabited areas
- use the calculated densities for each exchange to estimate its geotype. We have checked geotypes estimated in this way against the sample listed in Annex B and there is good correlation
- modify the demand per building in each model input file so that the exchange area matches the average for its assigned geotype in Exhibit A.7.

Due to the sampling and approximation used in generating the demand, it is highly unlikely that the model led line numbers will exactly match those in eircom's actual network

A consequence of modifying the model input files in this manner is that a number of locations will have no business or residential lines allocated to them. The model ignores these locations and does not include them in the costing process.

Annex B: Table of summary statistics of data used for predicting costs across countries

The table below presents the mean and median values of the various data used for estimating and predicting cost per line as set out in Section 4.1, as well as the standard deviation (sd) and the number of observations available (obs).

Table 14: Summary statistics of data used for estimation and prediction of cost per line

		Cost per line	Household density*	Total	Street density** Level 1	Level 2	Level 3	Level 4	Level 5	Area•
IRL	mean	€5,385.8	292.2	3,096.8	125.7	95.2	237.8	286.5	2,355.3	20.1
	median	€5,205.9	8.8	1,437.9	0.0	0.0	7.3	50.2	1,190.8	19.2
	sd	€5,580.7	853.5	4,403.4	554.4	403.7	605.8	726.8	3,276.5	13.9
	obs	3,440	3,440	3,440	3,440	3,440	3,440	3,440	3,440	3,440
A	mean		102.3	3,281.6	72.4	108.8	247.3	351.9	2,501.0	34.8
	median		24.0	3,015.3	0.0	0.0	193.4	268.0	2,319.1	23.7
	sd		631.5	1,956.5	212.0	223.6	286.4	364.0	1,441.6	36.1
	obs		2,379	2,379	2,379	2,379	2,379	2,379	2,379	2,379
B	mean		291.7	4,593.9	161.9	243.8	309.5	653.2	3,227.1	26.3
	median		103.8	3,778.6	0.0	103.7	231.1	574.9	2,633.2	17.5
	sd		754.8	2,843.1	352.6	411.7	350.6	422.1	2,042.5	26.5
	obs		1,146	1,146	1,146	1,146	1,146	1,146	1,146	1,146
Dk	mean		3,624.9	13,752.3	523.0	499.8	829.2	870.2	10,945.1	40.3
	median		249.9	5,367.0	0.0	0.0	0.0	135.9	3,738.3	12.4
	sd		7,648.1	16,594.1	2,854.2	2,590.1	4,473.5	3,090.3	13,956.0	64.9
	obs		1,076	1,076	1,076	1,076	1,076	1,076	1,076	1,076
Fin	mean		139.4	3,491.7	93.3	64.1	110.7	268.1	2,852.4	119.3
	median		3.2	2,656.3	0.0	0.0	22.6	176.3	2,341.7	55.0
	sd		571.4	3,213.3	335.0	253.6	276.6	388.1	1,988.1	332.5
	obs		3,039	3,039	3,039	3,039	3,039	3,039	3,039	3,039
F	mean		71.0	2,589.5	64.1	94.9	196.7	593.7	1,638.7	14.8
	median		14.4	2,142.9	0.0	0.0	74.6	543.0	1,295.2	10.6
	sd		458.6	1,895.6	215.0	220.8	299.7	394.5	1,468.4	14.9
	obs		36,612	36,612	36,612	36,612	36,612	36,612	36,612	36,612
D	mean		81.3	2,924.2	68.8	124.8	280.0	325.2	2,086.0	28.9
	median		38.9	2,655.9	0.0	0.0	241.3	283.0	1,843.1	17.1
	sd		133.7	1,520.4	191.7	198.1	266.7	280.9	1,227.0	35.8
	obs		12,376	12,376	12,376	12,376	12,376	12,376	12,376	12,376
I	mean		115.1	3,075.1	65.4	85.0	207.2	474.5	2,237.6	37.1
	median		43.4	2,622.8	0.0	0.0	129.8	402.5	1,870.6	21.7
	sd		240.7	2,049.4	190.6	196.6	268.6	393.4	1,593.6	49.8
	obs		8,103	8,103	8,103	8,103	8,103	8,103	8,103	8,103
L	mean		87.8	3,435.3	81.4	145.7	247.2	772.3	2,188.6	22.0
	median		36.6	3,052.8	0.0	0.0	167.3	764.3	1,877.8	19.6
	sd		134.7	1,283.9	196.7	211.6	268.3	269.2	1,030.2	14.0
	obs		116	116	116	116	116	116	116	116

		Cost per line	Household density*	Total	Street density** Level 1	Level 2	Level 3	Level 4	Level 5	Area•
NL	mean		799.9	7,841.0	195.6	217.9	511.0	933.7	5,988.1	8.6
	median		111.8	4,731.0	0.0	0.0	226.3	671.2	3,515.4	5.3
	sd		1,576.9	6,607.6	552.1	546.5	793.8	943.3	5,461.0	10.3
	obs		4,031	4,031	4,031	4,031	4,031	4,031	4,031	4,031
P	mean		193.3	4,213.2	41.8	114.5	204.4	444.4	3,407.8	21.9
	median		29.2	3,074.4	0.0	0.0	0.0	275.4	2,473.2	11.4
	sd		770.2	4,298.3	175.7	377.4	444.2	657.7	3,475.3	35.1
	obs		4,260	4,260	4,260	4,260	4,260	4,260	4,260	4,260
E	mean		448.6	3,853.7	65.3	99.5	229.9	428.2	2,805.2	46.9
	median		10.4	1,811.0	0.0	0.0	37.8	207.3	1,328.8	26.3
	sd		1,914.8	10,728.8	267.1	319.6	575.8	845.9	4,016.4	64.0
	count		10,918	10,918	10,918	10,918	10,918	10,918	10,918	10,918
S	mean		1,682.8	8,183.2	280.6	253.6	499.8	830.2	6,308.0	50.9
	median		316.8	6,601.4	0.0	0.0	0.0	254.6	4,937.1	1.2
	sd		5,977.8	8,202.8	1,083.3	1,600.3	1,912.9	2,276.1	6,315.2	302.2
	obs		9,308	9,308	9,308	9,308	9,308	9,308	9,308	9,308
UK	mean		1,013.9	8,401.5	110.8	331.0	723.5	307.0	6,839.2	25.8
	median		549.1	6,835.4	0.0	0.0	228.3	125.6	5,489.9	4.4
	sd		1,404.3	8,666.2	476.6	889.3	1,497.0	506.1	6,059.5	72.5
	obs		9,458	9,458	9,458	9,458	9,458	9,458	9,458	9,458

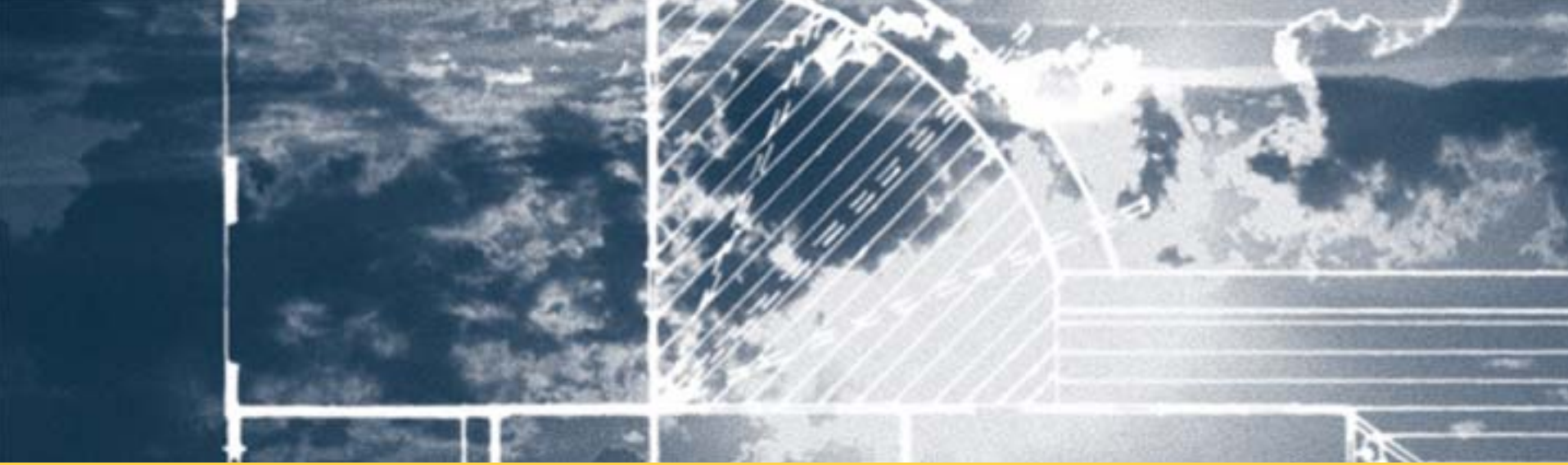
Source: DotEcon based on data provided by MapMechanics and Network Strategies

* Households per km^2

** Metres of street per km^2

• km^2

Data presented in this table use km^2 as the unit of area, in the model estimated metres square is used instead.



Access network cost model for Ireland

Cost modelling

Dr Alan Hamilton
Principal Consultant
Network Strategies Limited

November 2008

NETWORK STRATEGIES
• Telecommunications Strategy •

Agenda

- Who are Network Strategies?
- The access network costing project - background
- Model approach and structure
- Data, rules and key assumptions
- Results of costing the base scenario
- Analysis of results
  - Comparison with New Zealand
- Other scenarios and options tested
- Summary & conclusions

Network Strategies

- Telecommunications consultancy
  - Economic, engineering, regulatory, market studies
    - assisting operators, regulators, industry bodies, governments, vendors
    - performing cost modelling, pricing & valuation, technical & business strategy development, policy support, regulatory operations & support
    - active in Asia Pacific, Asia, UK
- New Zealand based with offices in Auckland, Wellington, Melbourne & London

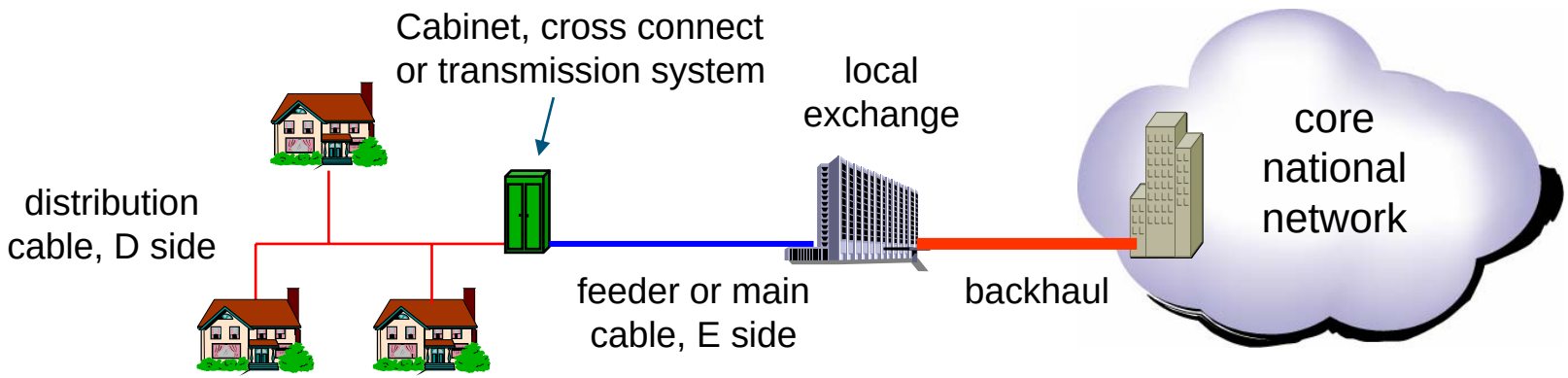
NETWORK STRATEGIES

Project background

Project background

- Purpose: to determine if there are systematic country differences that may explain why telecommunications access network costs in Ireland are different to those in otherwise comparable EU countries
  - Phase 1: determine access network costs in Ireland using an engineering/economic cost model (Network Strategies Limited)
  - Phase 2: compare Irish costs with appropriate EU countries (DotEcon Limited)

Requirement: we needed to capture specific access network components for Ireland in detail



Normally a dedicated copper line for each customer location

Analogue copper or may be a narrowband copper, wireless or fibre optic transmission system in some countries

May be a narrowband or broadband copper, wireless or fibre optic transmission system

NETWORK STRATEGIES

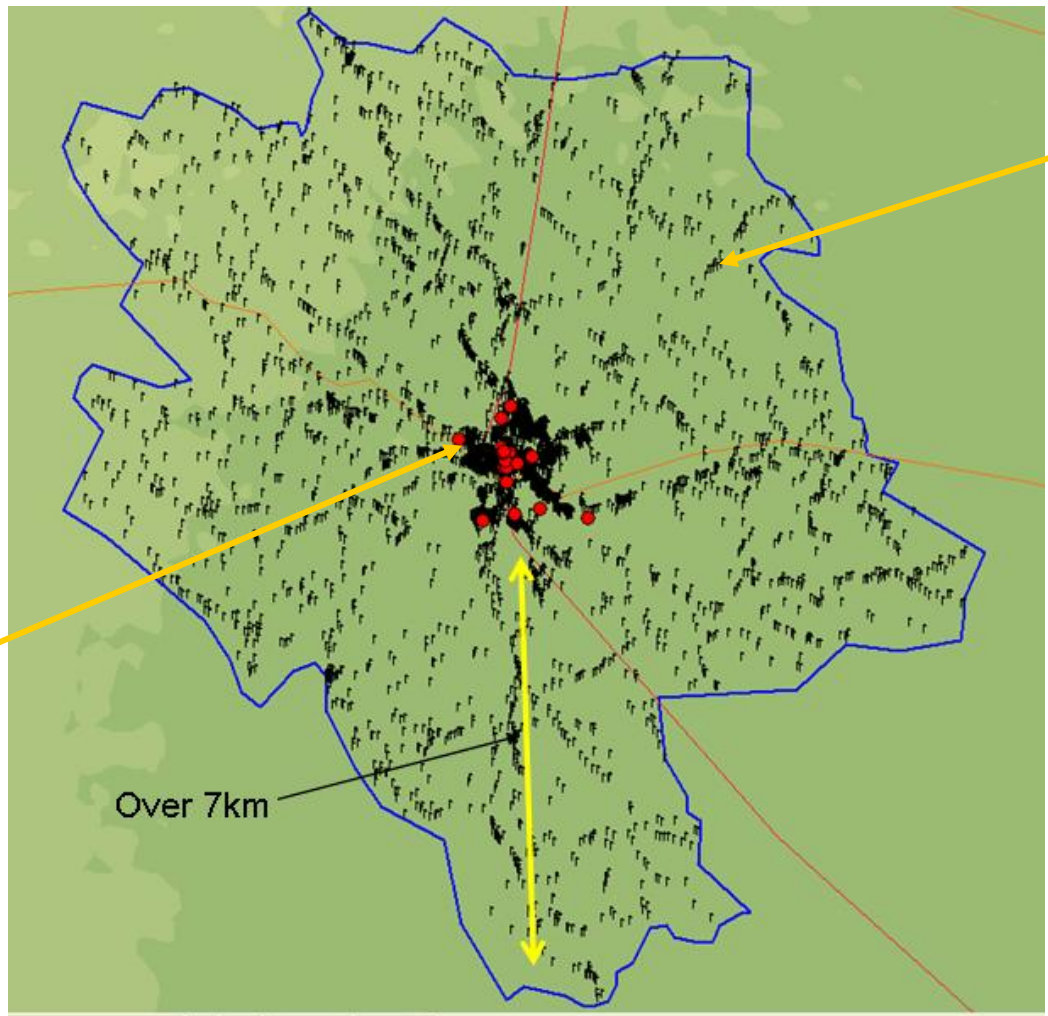
Key data requirements

- Country specific costs
  - Equipment prices vary between markets
  - Labour costs
- Local rules and regulations
  - Resource/planning consents
- Demand and distribution of demand
- Any other special characteristics that affect

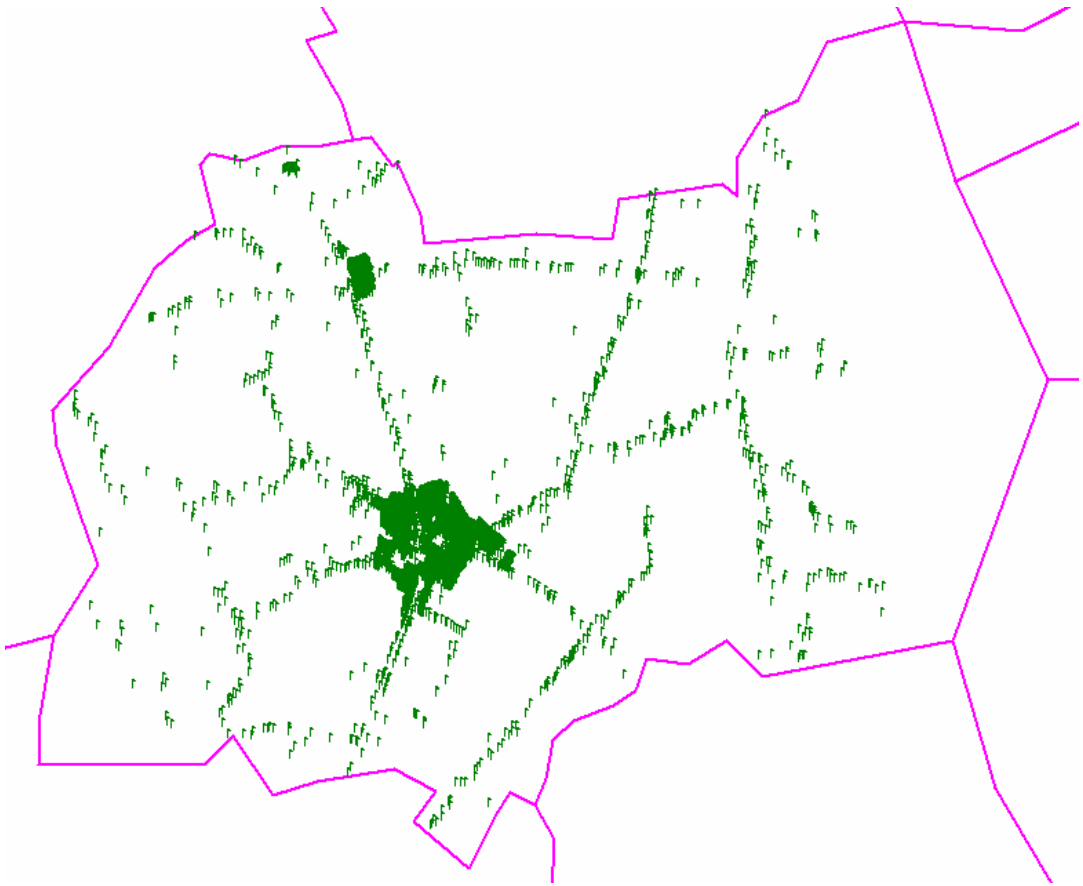
Initial impressions prior to modelling

- Cost data at the high end of expectations, but not unusually so
- eircom access network is built around many historical copper centres
  - a relatively large number of small exchange areas
  - demand spread very evenly in many areas
- some lines appear to exceed modern copper distance limits

Example of demand spread - Carrickmacross



Similar GEO 3 area in New Zealand (Matamata) – low density demand appears to be less spread



The modelling process

Phase 1 involved…

- Collection of relevant eircom cost information and network data
- Interpretation of local geographical and geo-located building information (based principally on An Post address database)
- Model development, including determination of network layout, demand and processing of input costs and engineering rules
- Analysis and model refinement, comprising identification of the key cost drivers in the model
- Some limited comparisons with networks in New Zealand and scenario testing

Model approach and structure

Approach

- To capture any specific country characteristics it was necessary to avoid sampling or averaging where possible
- We applied the US Federal Communications Commission's Hybrid Cost Proxy Model (HCPM) to estimate access network costs by:
  - Customising for Ireland through adjusting input costs and engineering assumptions
  - Using highly localised geographic input data

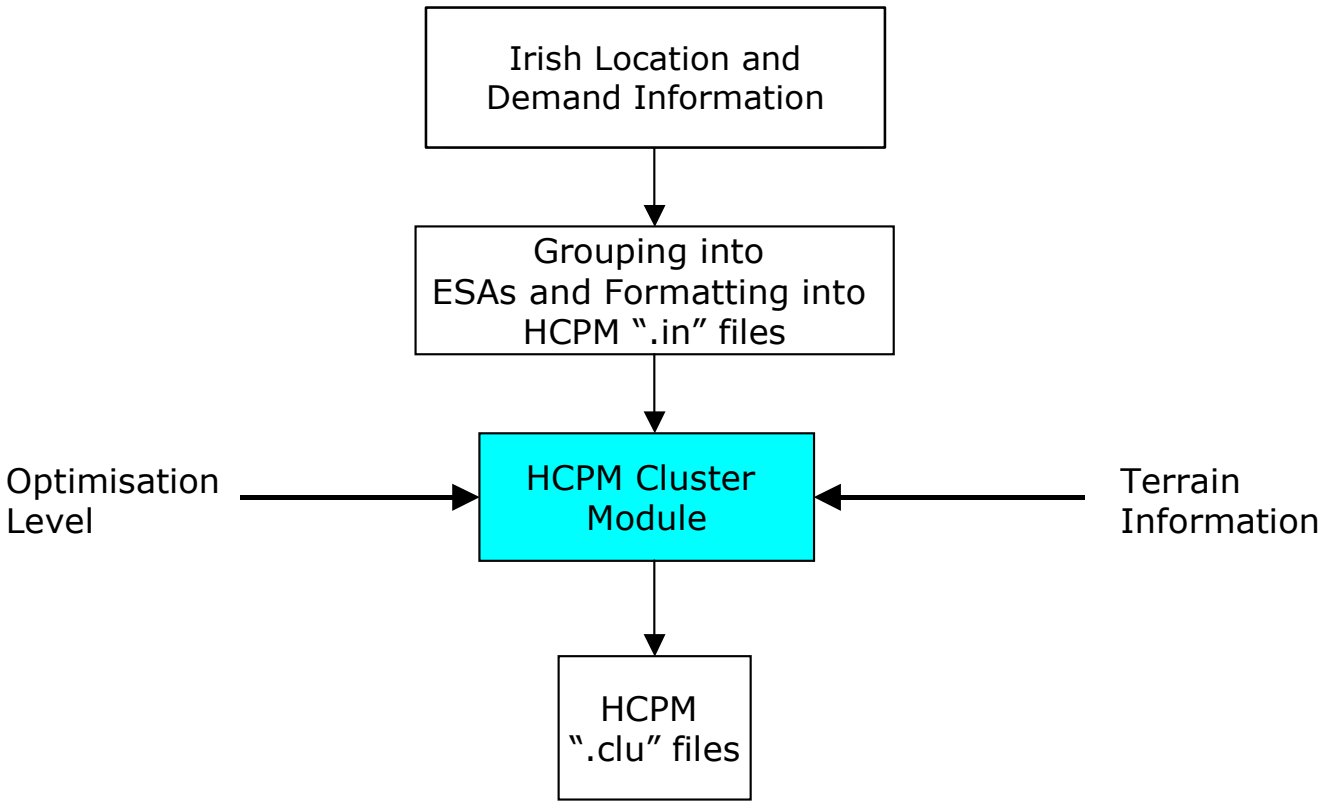
HCPM characteristics

- It is "bottom up" and "scorched node"
  - **Bottom up** builds a network to meet a given demand, based on the costs and capabilities of network equipment and structure
    - Tends to use modern assets
  - **Scorched node** removes inefficiencies of historical network design
    - retains all current exchange locations, but not cabinets or cable data
    - re-designs the network from the exchange to the customer locations using modern engineering rules and efficiency assumptions

Model structure

- HCPM consists of two independent modules
  - Customer location module
  - Loop design module
- **Customer location** uses geo-coded customer location and line demand information for an exchange service area (ESA)
  - Relies on grouping locations within exchange boundaries
- **Loop design** costs the main and distribution cable infrastructure required to serve each ESA
  - Can be set to various levels of optimisation

Approach for Ireland – key local cost drivers required for customer location module



pre-processing of local data required before the model can be operated

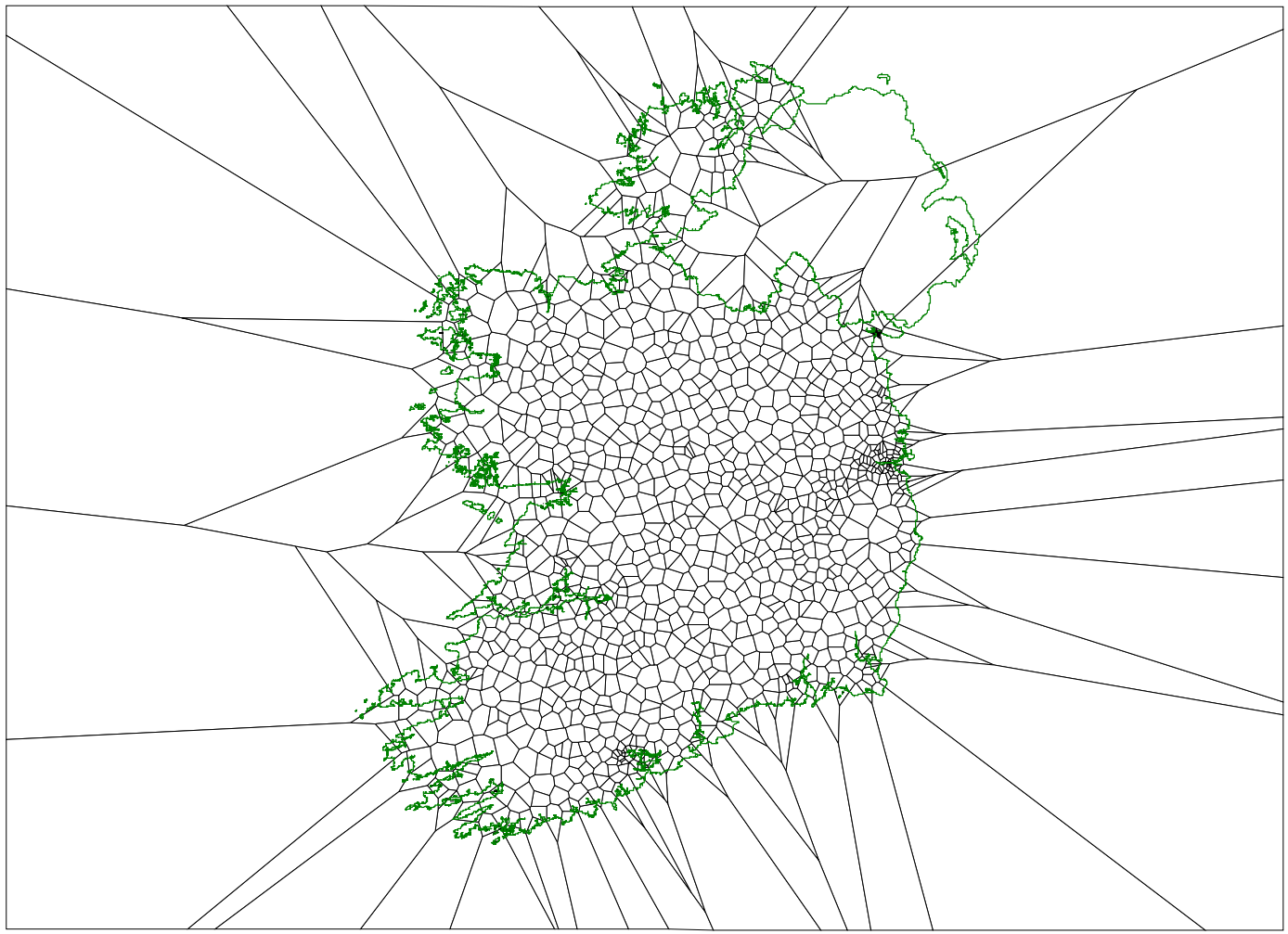
Customer location data

- AN Post data utilised is:
  - x and y (easting and northing) building location coordinates in the Irish Grid reference format as defined by the Ordnance Survey of Ireland
  - building purpose (residential or business)
- AN Post data does not provide information on:
  - which exchange a location is connected to, or
  - the numbers of fixed network connections at each building or location

Allocating locations to exchanges

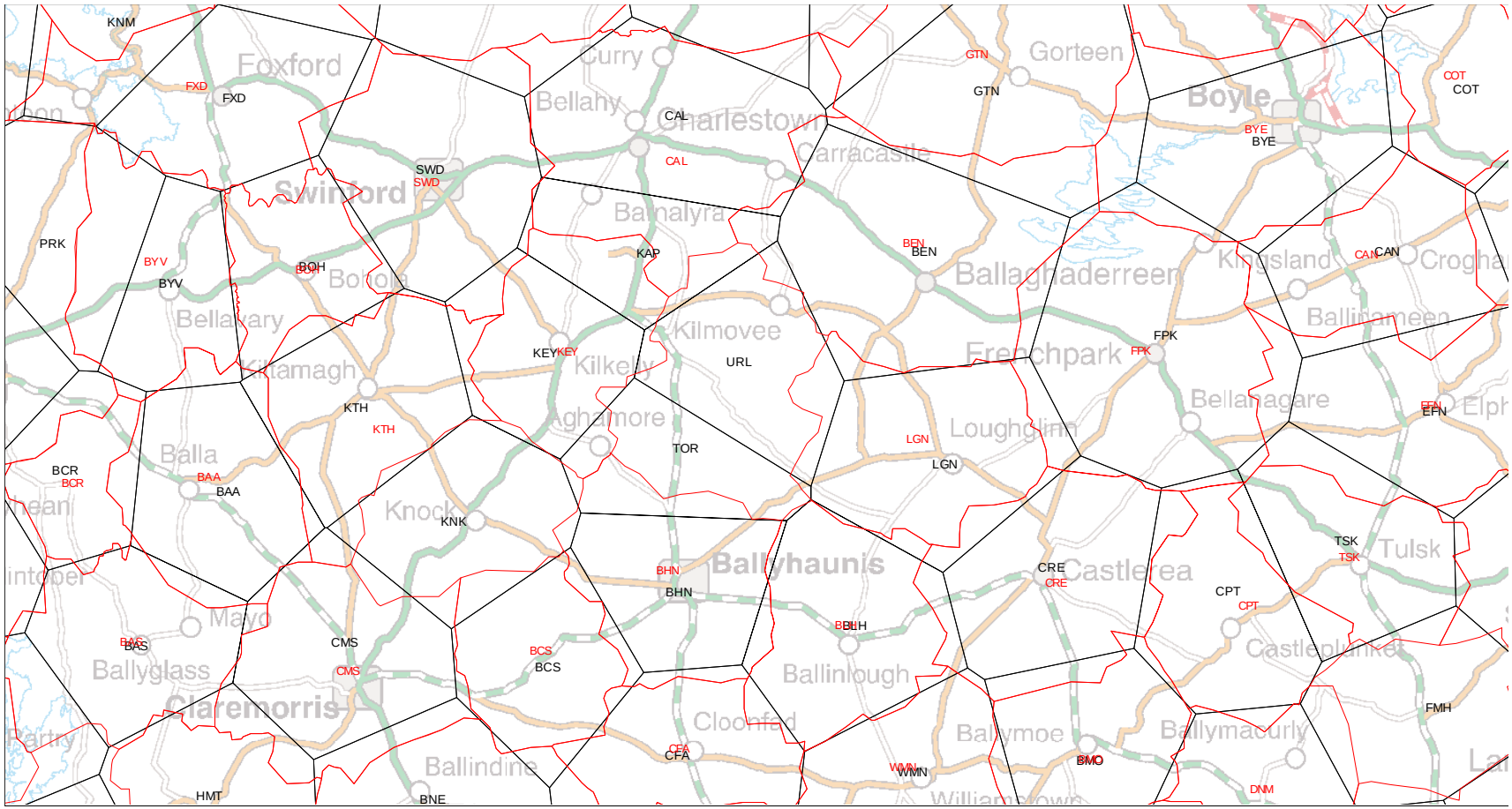
- Ideally we would use real exchange boundary data
  - Not available for all exchanges in the format required
- Proxy set of exchange boundaries developed based on a refined list of 1172 exchange locations
  - Using Voronoi polygons which effectively allocate each AN Post building location to its nearest exchange site

Voronoi polygon exchange boundaries – line segments made up of mid-points between nodes



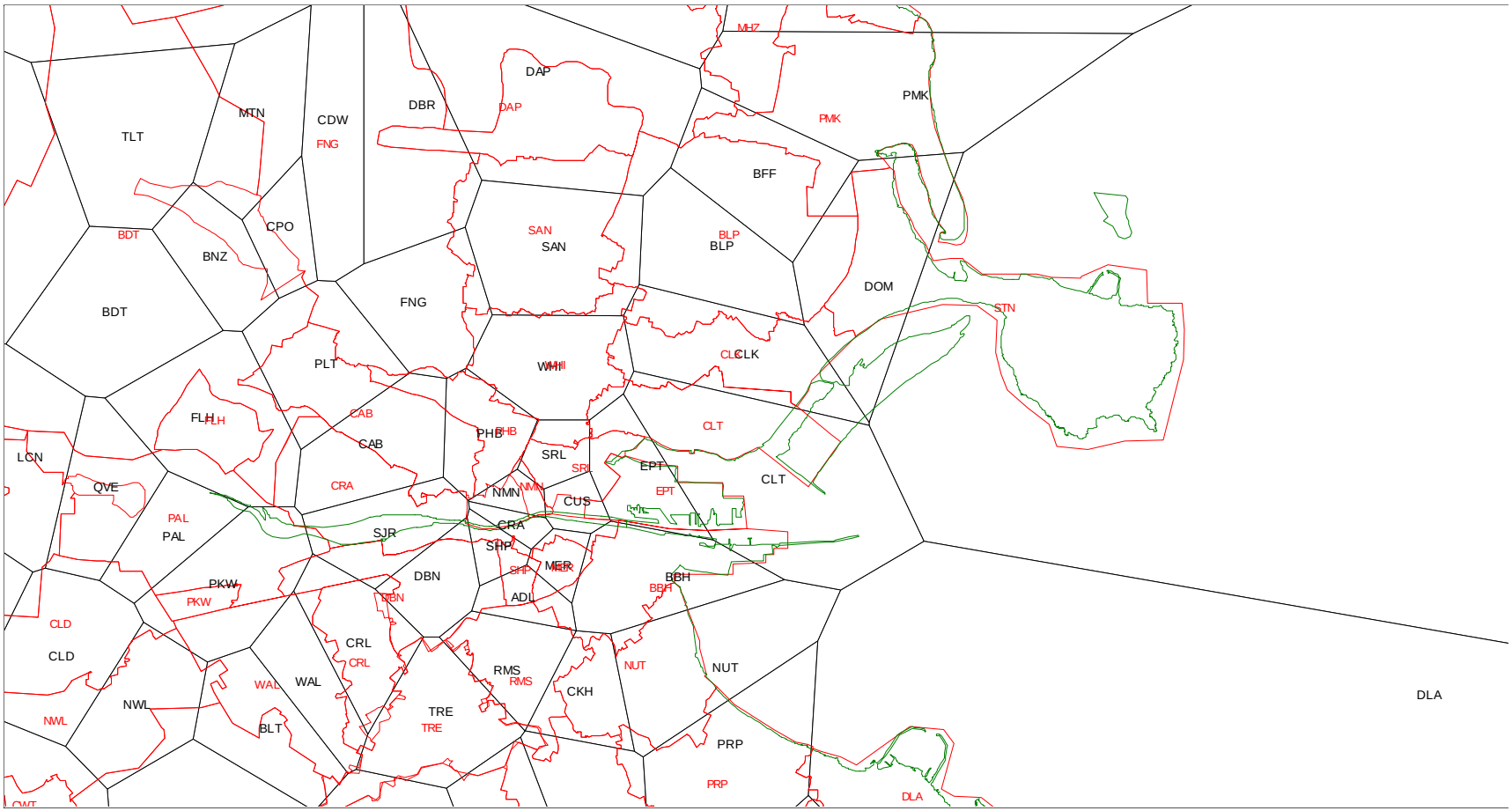
NETWORK STRATEGIES

Reasonably good match between Voronoi and real boundaries in low density areas



NETWORK STRATEGIES

Some obvious anomalies in urban areas – Donaghmede is an extreme example



Implications of differences between Voronoi and real boundaries

- Where major differences in area and line count occur, total capital costs cannot be relied on for a particular ESA
  - Costs per line are reliable
- Due to boundary changes, the actual numbers of lines connected to each exchange cannot be relied on to provide demand information (except where Voronoi and real boundaries match very closely)

Overlaying demand onto AN Post location data is not straightforward

- In high density urban areas, the metallic path numbers typically exceed the numbers of buildings
  - Due to multi-tenanted buildings and businesses with multiple lines
- Modern urban areas also feature direct building fibre access
  - Many "telephony paths" would not be counted as metallic paths
- Fixed/mobile telephony substitution also affects the count of working metallic paths in all area types
- In rural areas, building numbers are expected to exceed line numbers

Demand rules were developed using a set of geo-type exchanges:

- Known geo-types with reliable boundary information were used:

Geotype	*Average lines per business*	*Average lines per residence*
GEO 1 Major City	7.08	0.82
GEO 2 Urban	9.38	0.78
GEO 3 Urban Rural	2.17	0.54
GEO 4 Rural	0.93	0.52
GEO 5 Very Rural	0.42	0.48

- These ratios were used to modify the AN Post building data, turning it into fixed line demand per location

Rules for applying demand are important

- Line numbers at residences and businesses generated to meet the ratios for their geo-type (with rounding)
- Some AN Post locations removed from the model database
  - This was a random application as there is no information on the distribution of locations without fixed line service
- A change in the assumptions for the application of demand rules could be significant
  - For example
    - Remove only locations which are furthest from the exchange
    - Assume no fewer than two lines per business

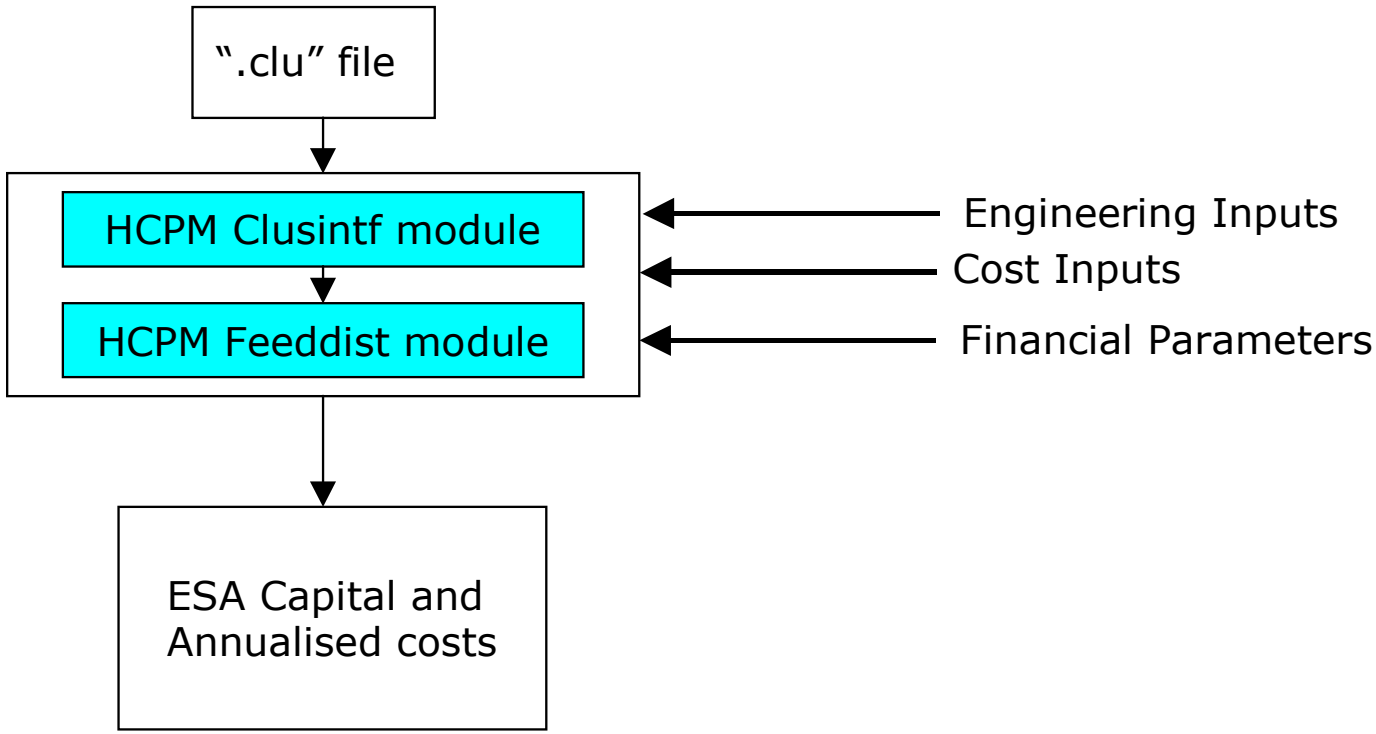
Placing cabinets and line distances

- Cabinet placement determined by cabinet size restrictions, copper line length limitation and optimisation settings
  - Cabinets initially limited to nominal 500 lines (scenarios tested)
  - Copper (rectilinear) distance limited to 6.75km (scenarios tested)
  - Optimisation left at FCC default
    - Over optimisation leads to unfeasible efficiency

Terrain data inputs are key to determining trenching costs

- Terrain methodology assumes that operators or contractors have knowledge of local (per ESA or cabinet) terrain cost drivers (such as bedrock depth, soil texture, water table depth and ground slope)
- Detailed terrain information is available for Ireland, but sufficiently detailed cost data not available to allow a correlation of costs with terrain
- Principal cost drivers recognised by eircom trenching contractors are
  - Geo-type, based on line density
  - Surface type
- HCPM terrain inputs set to default and actual trenching rates used

HCPM loop design module - process



Each exchange area designed and costed individually

Loop design inputs

- Engineering rules and equipment cost inputs used to design the network and determine the capital costs of the feeder and distribution access networks
- Although not the purpose of this project, financial parameters, including asset lives, price tilts and cost of capital could be used to determine annualised costs
  - When combined with operational costs and mark-ups, can be used to estimate total annual and monthly costs

Model input data, rules and key assumptions

Scenario baseline data

- The following principally describes our baseline scenario
- HCPM can be set to model a number of access network arrangements and technologies through setting of rules and assumptions
- Once the basic model input files have been developed (which was the most significant and time consuming aspect of the project), it is relatively simple to change rules, assumptions and costs to model access network scenarios

Copper cable costs

- The model can design access networks incorporating overhead, underground and direct buried copper cables
- Our baseline scenario allows no direct buried cable, so the option has been removed from the model
- Copper cable costs include material, placing, jointing and engineering, but do not include the costs of overhead or underground structure (such as poles or trenches).
- Copper cable costs have been derived from the spreadsheet <080208 Copper Cable Prices.xls>

Access fibre cable costs

- The copper line design limit of 6.75km requires that some cabinets use fibre main cable and line systems
- Once again, direct buried cables are not permitted and have been removed from the model
- The fibre cable costs include material, placing, splicing and engineering but do not include any structure or optical distribution frame costs.
- Fibre costs for the scenario have been derived from <Fibre costs Access.xls> which was provided in response to Network Strategies' data request

Distribution cable type mix

- Relative proportions of aerial, buried and underground distribution plant (by geo-type) is set using a table:

Copper Distribution Plant Mix					
Density	**Geotype**	**UG**	**Buried**	**Aerial**	**Comments**
0	GEO 5	10.00%	0.00%	90.00%	{These entries represent
5	GEO 4/5	10.00%	0.00%	90.00%	minimum placement percentages
100	GEO 3	20.00%	0.00%	80.00%	for underground, buried
200	GEO 3	20.00%	0.00%	80.00%	and aerial respectively.
650	GEO 2	75.00%	0.00%	25.00%	When they sum to less than 1,
850	GEO 2	75.00%	0.00%	25.00%	the model selects the residual
2550	GEO 1	90.00%	0.00%	10.00%	placement to minimize cost
5000	GEO 1	90.00%	0.00%	10.00%	for the particular terrain and
10000	GEO 1	90.00%	0.00%	10.00%	density.}

- In the scenario, direct buried cables are not permitted, so the percentage placement for underground and overhead plant must always sum to 100%
- figures are based on dimensioning rules in the eircom cost model <Access BU Dim V01_eircom_2007.xls>

Main cable type mix

- We understood from eircom's cost model (in particular <Access BU Dim V01_eircom_2007.xls> that no overhead provisioning of main cable is permitted
- All main cable in the base scenario was therefore designed and costed as underground
- Subsequently, we understand that some overhead main cable may be permitted in rural areas
  - Sensitivity testing suggests that changing the assumption to (say 50% overhead main cable for rural) makes little difference to overall capital costs

Distribution point (DP) and cross connect cabinet costs

- Initial modelling used estimated cabinet costs and design rules
  - These were not specifically available from the eircom data or the existing cost model (which appears to assume that all DPs are 20 lines)
- Subsequently, more detailed data has been provided, and we have found that substituting this into the model makes little difference to the exchange area estimated costs (less than 3% increase over baseline scenario)
  - Overall, the model results are relatively insensitive to cabinet costs
  - DP costs are more important due to the large numbers deployed in the network, but again the model is relatively insensitive to reasonable variations in their costs.

Fill factors

- Model uses fill factors to "scale up" the demand for the purposes of dimensioning
  - Provisions additional lines and equipment to cater for forecast demand, churn and faulty lines.
- Baseline scenario fill factors:

Fill Factors				
Density	**Geotype**	**Feeder**	**Distr**	**Comments**
0	GEO 5	80.0%	40.0%	Utilisation factors for feeder and distribution plant
5	GEO 4	80.0%	40.0%	
100	GEO 3	80.0%	40.0%	
200	GEO 3	80.0%	40.0%	
650	GEO 2	80.0%	60.0%	
850	GEO 2	80.0%	60.0%	
2550	GEO 1	80.0%	60.0%	
5000	GEO 1	80.0%	60.0%	
10000	GEO 1	80.0%	60.0%	eircom

Fill factor sensitivity

- It was suggested that distribution cable fill factor of 50% is more appropriate for all geo-types
- Making this change to the model reduces the baseline scenario capital cost by less than 2%
  - Cable costs are less significant than trenching and poles

Trenching costs - rationale

- Costs of trenching typically vary with terrain type and line density
  - eircom cost data varies with surface type (carriage, footway or verge) and geotype (Dublin and other areas).
- We have combined "surface by geotype" information from eircom's cost model with "trenching cost by surface type" data in the file <080411 Updated Trench Costs.xls> to develop average costs by geo-type
- We have allowed for long term damage compensation at the rates of €17.06 per metre for carriageway, €13.55 per metre for footway and €3.86 per metre for verge. These values were derived from data in the file <080320 LA Charges.xls>.
- Manhole, chamber and duct costs are additional to trenching structure and are input separately.

Calculated trench costs

- Scenario 1 assumes that long term damage is charged
- Exclusion of long term damage costs reduces overall capital cost by around 10%

Geo Type	*Average trench cost per metre with long term damage charge*	*Average trench cost per metre without long term damage charge*
GEO 1, Major City	€100.16	€87.48
GEO 2, Urban	€69.86	€57.46
GEO 3, Urban/Rural	€64.74	€53.52
GEO 4, Rural	€59.62	€49.58
GEO 5, Very Rural	€49.37	€41.56

Overhead structure costs

- Overhead costs have been derived from eircom's cost model, which assumes 50m between poles in all geotypes, and pole material and placement costs in the file <080312 Poles Costs.xls>
- There is some variation in use of pole sizes by geo-type, but it has little effect on costs – average of €386.59 per installed pole
- This is equivalent to €7.73 per metre average overhead structure cost, which is significantly lower than trenching costs for all geo-types

Sharing

- Two types of cost sharing commonly allowed for in telecommunications cost modelling:
  - costs shared between a teleco and other utility operators (such as pole sharing)
  - costs shared between access and core networks
- We understand that there is no significant sharing between eircom and utilities, but some sharing has been identified between access main cables and the core network
- Using the estimated shared duct distances from the eircom cost model, we have implemented a general scheme for sharing of underground structure (all poles are assumed to be 100% access network cost)

Sharing of main and core network cables

Geo Type	*Percentage of main cable underground structure cost allocated to the access network*	*Percentage of main cable aerial structure cost allocated to the access network*
GEO 1, Major City	98.48%	100%
GEO 2, Urban	95.91%	100%
GEO 3, Urban/Rural	89.76%	100%
GEO 4, Rural	80.04%	100%
GEO 5, Very Rural	73.47%	100%

Results of initial modelling for Phase 1

Capital cost: distribution by network components

- The modelled scenario reports total capital costs of €6 723 million to build a national network of around 2.2 million lines, implying an average cost per line of around €3,100
- The line number results from the adjusted demand applied using penetration rates for each geo-type calculated from the sample of exchanges
- The capital costs are split between network components:

Total capital cost	*Main cable and placement*	*Distribution cable and placement*	*Drop cable and placement*	*Fibre Terminal*	*Cabinet*	*Network termination*	*Drop terminal*
100%	12%	60%	16%	4%	1%	1%	6%

Cable routes and costs

- Cable and cable placement comprise almost 90% of the total capital costs
  - distribution network costs dominate

Main cable route	*Distribution cable route*	*Drop cable route*
9165 km	143 652 km	59 584 km
€88.89 per metre	€27.94 per metre	€17.66 per metre

Main cable cost breakdown

- All main cable routes are underground copper or fibre
- The national total cost for main cable routes is €815 million
- Cost breakdown:

Copper cable	*Fibre cable*	*Ducts*	*Manholes and chambers*	*Trenching*
11%	8%	6%	19%	56%

Distribution cost breakdown

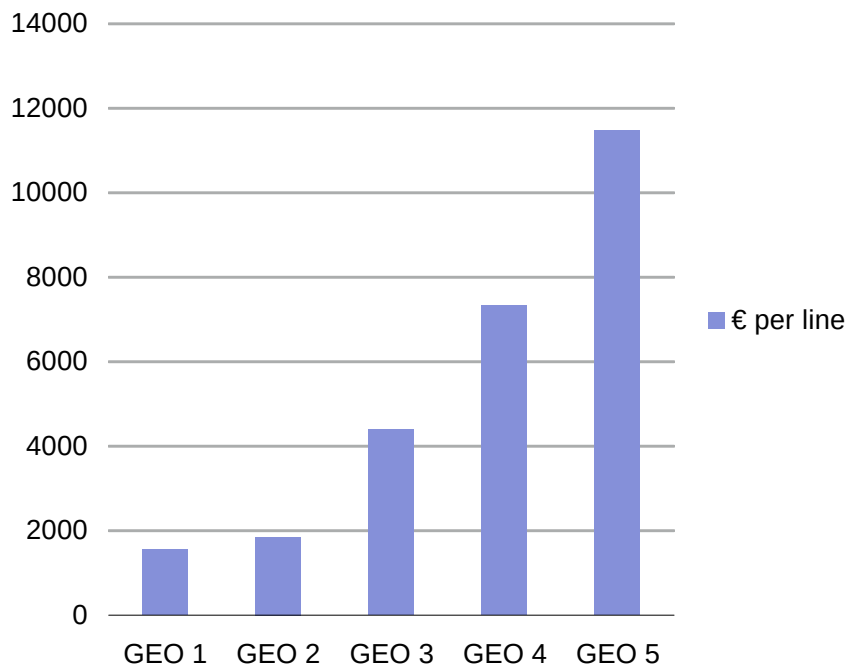
- Overhead routes make up more than 70% (by distance) of the modelled distribution network
  - The remainder is placed underground at greater expense
- Cost breakdown:

Underground cable	*Overhead cable*	*Ducts*	*Manholes and chambers*	*Trenching*	*Overhead Structure*
4%	22%	4%	11%	36%	23%

Analysis of model line costs and investment

Line costs by geo-type

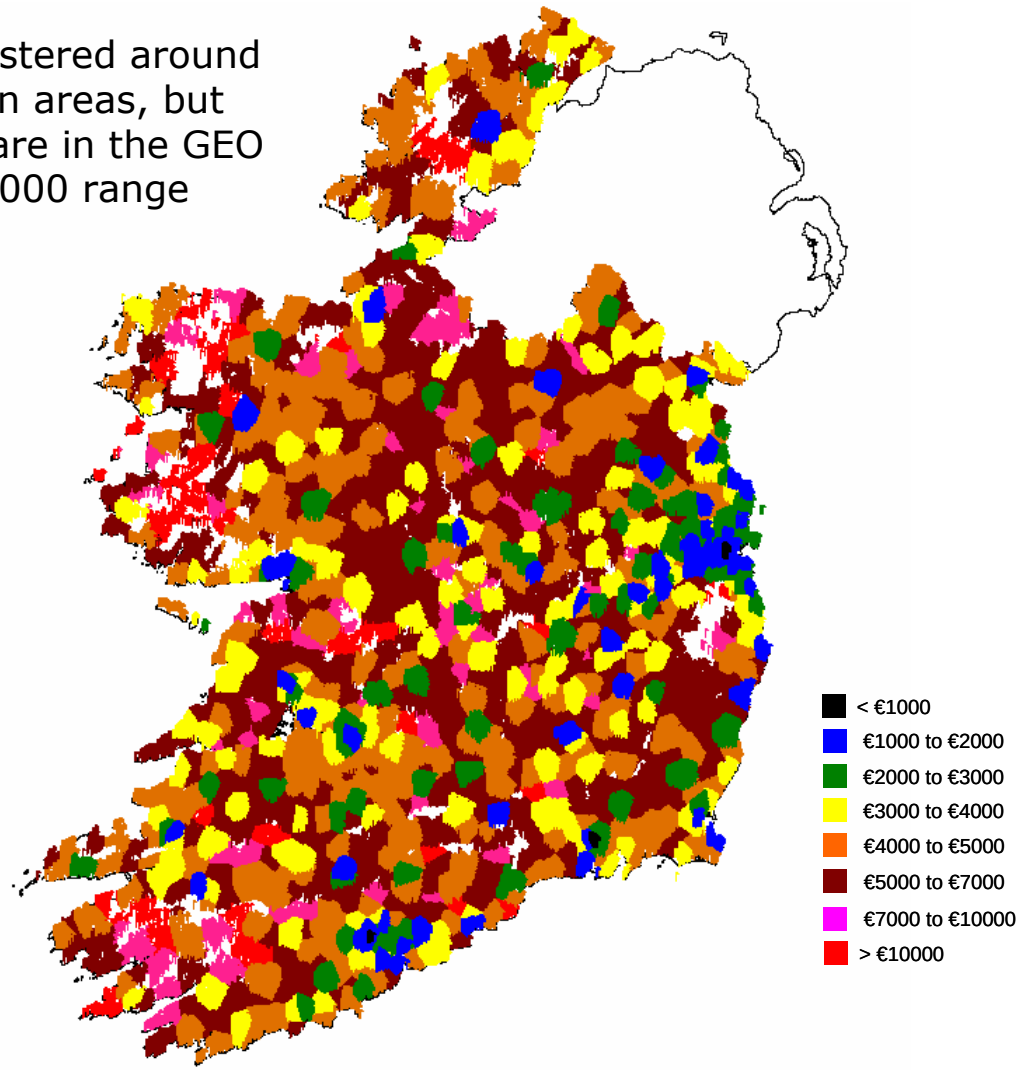
- Variation in total capital cost per line across ESAs is considerable, from around €500 to over €20 000
- Weighted average by geo-type:



NETWORK STRATEGIES

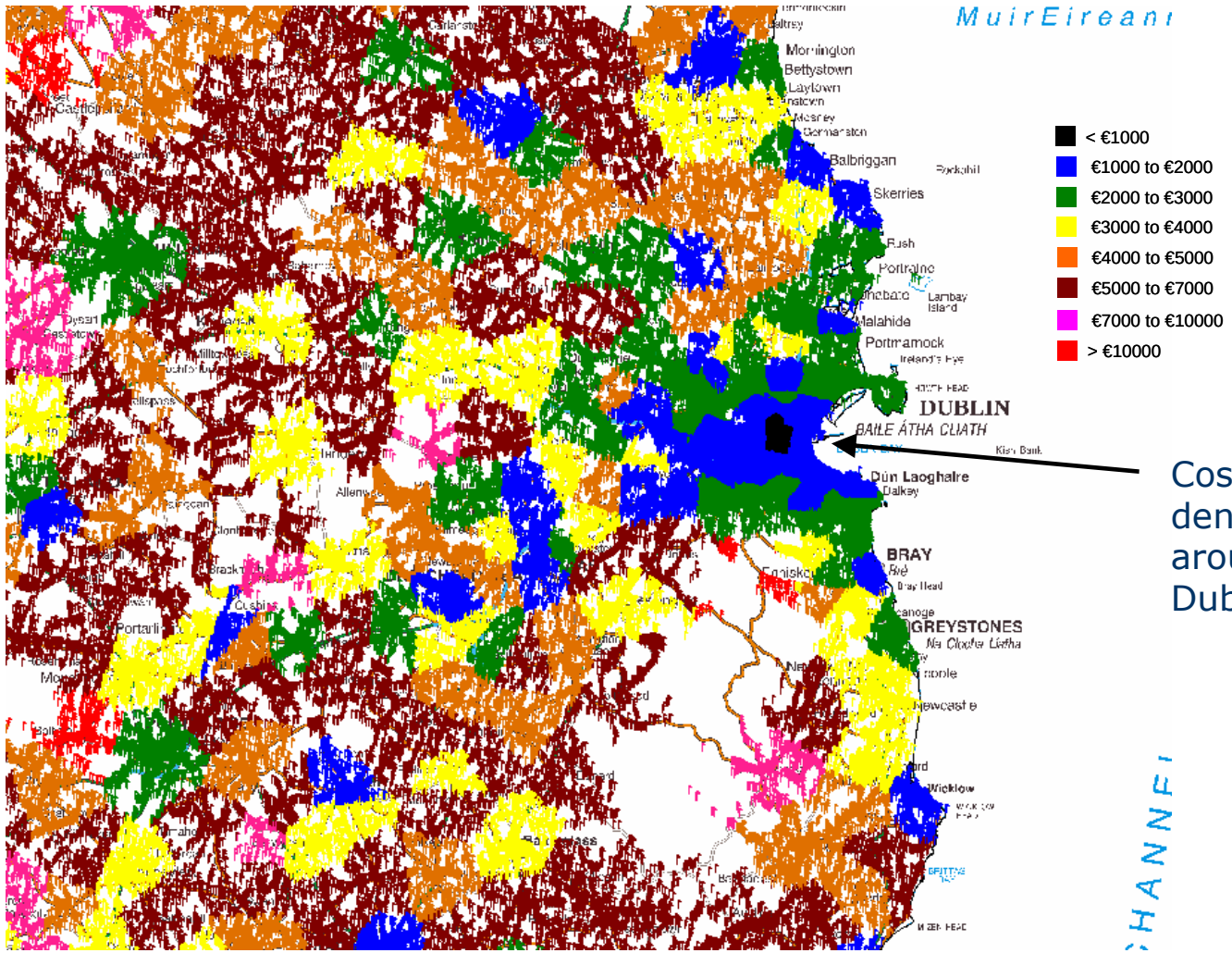
National variation of line costs

Low cost lines are clustered around major cities and urban areas, but the majority of lines are in the GEO 3/GEO 4 €4000 to €7000 range



NETWORK STRATEGIES

Detail of capital cost per line around Dublin

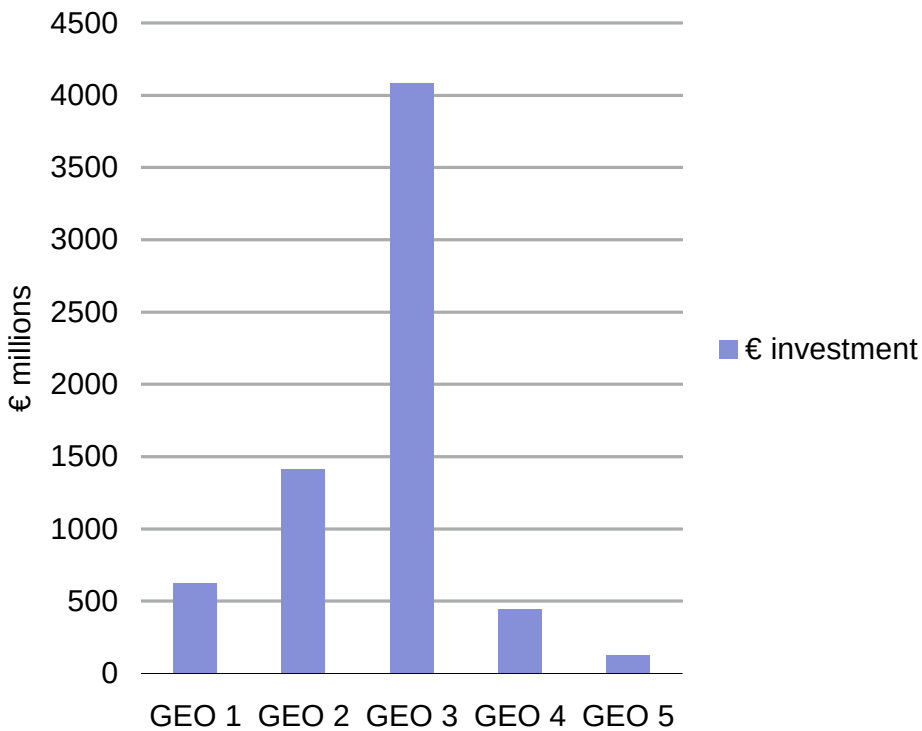


Costs rise as line density decreases around the main Dublin urban area

NETWORK STRATEGIES

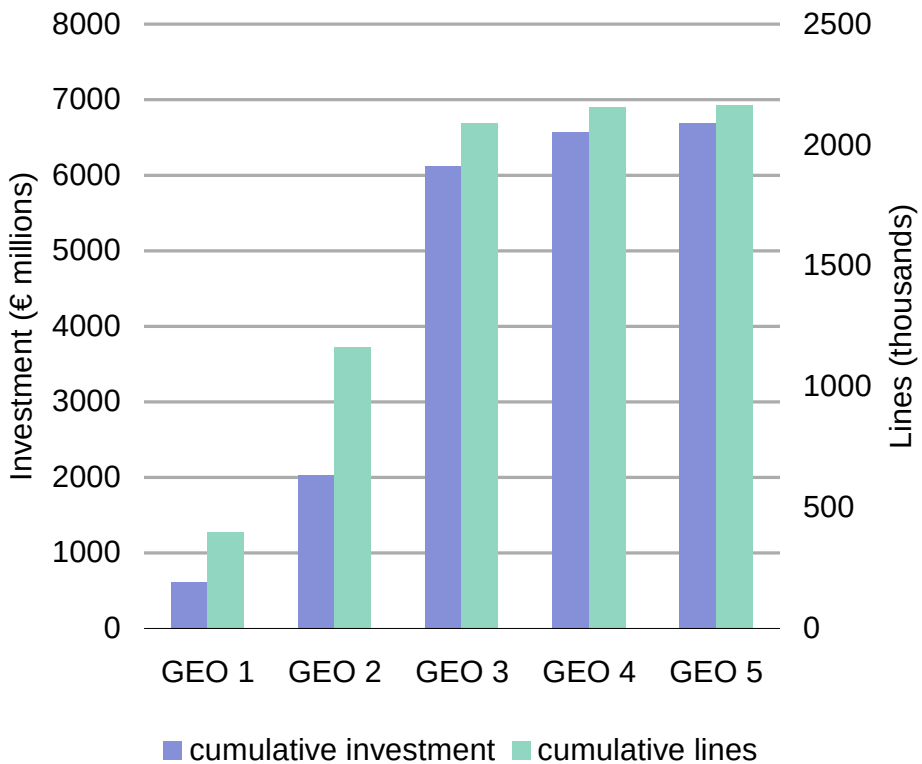
Investment by geo-type

- GEO 3 attracts the bulk of investment and contains over 40% of the modelled lines:



Cumulative investment and line numbers by geo-type

- GEO 1, 2 and 3 contain the bulk of lines. There is a significant per line cost difference between GEOs 1 and 2 and GEO 3



NETWORK STRATEGIES

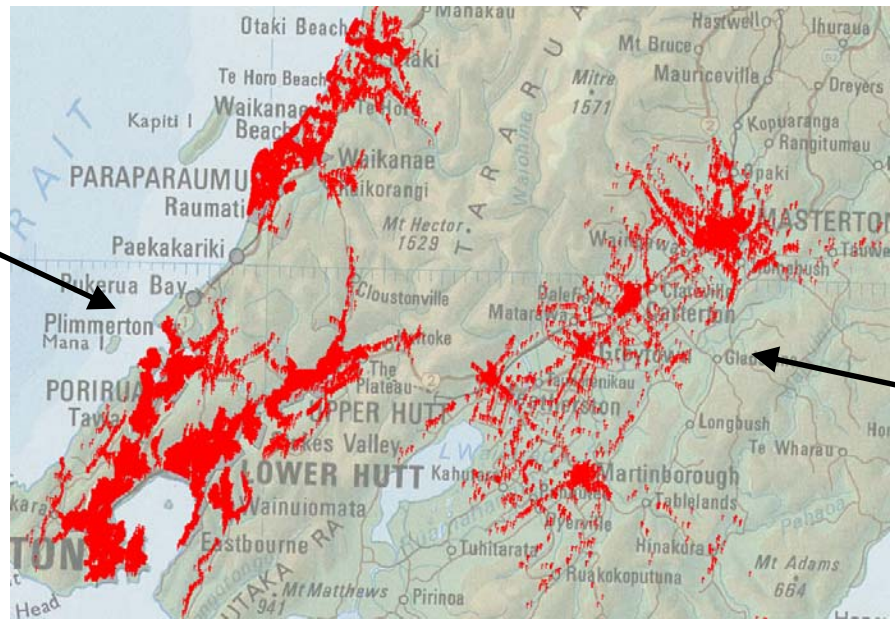
Comparison with New Zealand

- Ireland and New Zealand are often compared in benchmarking studies
  - considered to have many similarities, including a dispersed rural population
- Having modelled both countries, some differences emerge
  - For Ireland, the model reports a coverage of almost 60 000 square kilometres, which is well over 80% of the total country
  - In New Zealand, we estimate that the fixed network covers less than 20% of the total area

New Zealand is more urbanised (from a network footprint perspective)

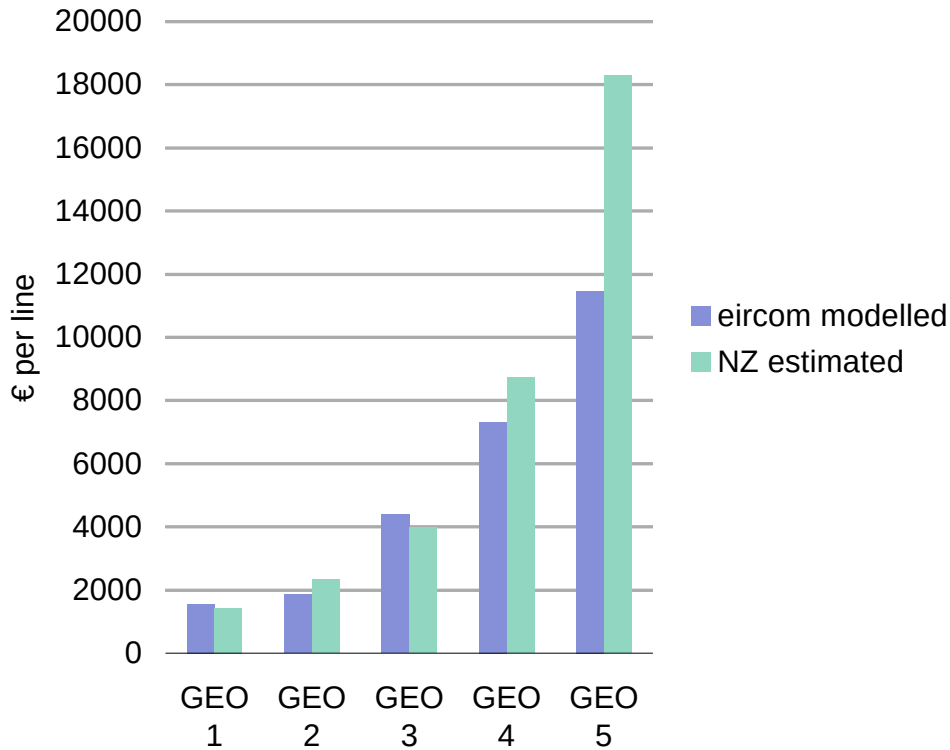
- Population centred in towns and follow highways

Geographical features define populated areas



Plane and plateau areas similar to Irish land coverage

Comparison of estimated line costs, using Irish capital costs to model both countries



- New Zealand GEO 5 is not directly comparable with Ireland

NETWORK STRATEGIES

Details of lines and costs comparison

	eircom model		*New Zealand estimate*	
Geotype	*lines*	*average capital cost per line*	*lines*	*average capital cost per line*
GEO1	18%	€1 560	16%	€1 420
GEO 2	35%	€1 850	54%	€2 340
GEO 3	43%	€4 400	24%	€3 990
GEO 4	3%	€7 320	3%	€8 750
GEO 5	1%	€11 480	3%	€18 300

- If inconsistencies in treatment of GEO 5 are removed, Irish average line cost (€3060) is above New Zealand (€2800)

NETWORK STRATEGIES

Scenario testing based on feedback from eircom

Variations on baseline scenario

- Larger and smaller cabinet sizes
- Overhead main cable in rural areas
- Changes to fill factors
  - In general the scenarios altered total costs by around plus or minus 3% when changes were kept within rational deviations
  - The key change with cabinet size was the length of main cable, which was longer for the smaller cabinet size
  - Allowing overhead main cable in rural areas resulted in a small cost reduction

Shortened loop scenario

- The most extreme scenario tested was a shortening of copper loops to a maximum of 2.5km
- Drove total capital costs to almost €9 billion and more than doubled the numbers of fibre fed cabinets in the network
- Total distribution cable distance was reduced by 12%, but at the cost of significantly more main cable
- Passive Optical Network (PON) scenario could be built using appropriate fibre costs (re-using existing duct) and installing splitters/drop boxes instead of copper drop

Summary and conclusions

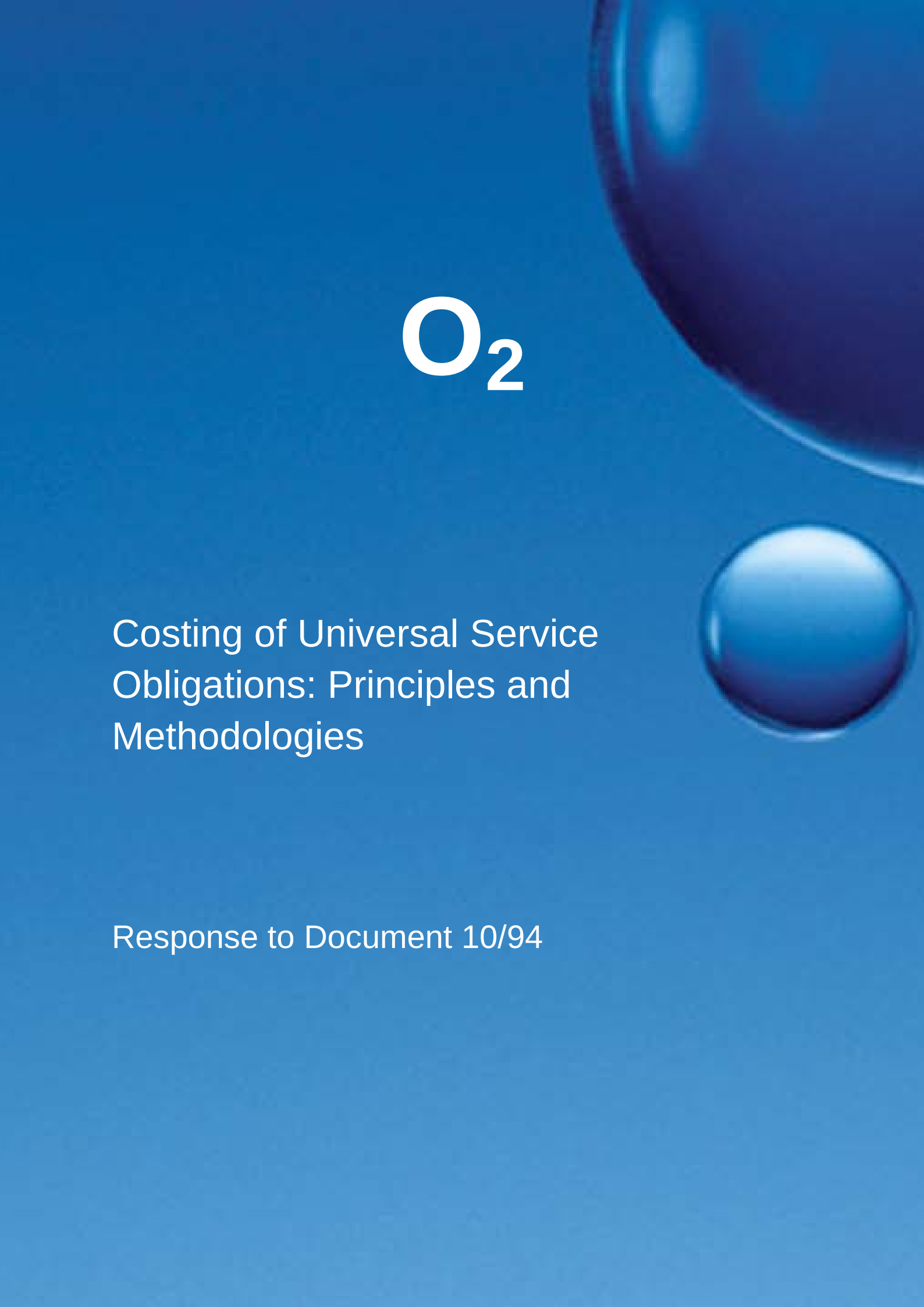
- The Phase 1 modelling exposed a number of possibly unique cost drivers to be examined in more detail in Phase 2 of this project
- The key cost components in the model are structure (trenching and poles) and cable costs. In particular, distribution structure and cable costs are very significant
- Factors in the Irish building location data appear to drive distribution cable lengths
  - Also dependent on application of demand rules
- None of the network design scenarios tested has significantly reduced the distribution cable distances or costs

Contact: Dr Alan Hamilton

Phone: +64 4 471 2590

a.hamilton@strategies.nzl.com

4 O2



Costing of Universal Service Obligations: Principles and Methodologies

Response to Document 10/94

O2 welcomes the opportunity to respond to ComReg's latest consultation on "Costing of Universal Service Obligations; Principles and Methodologies". O2 Ireland has consistently expressed reservations about the USO obligation in general and specifically in relation to the current scope of the obligation as designated in Decision 06/10, and here we will take the opportunity to revisit these issues. As stated in our response to the earlier USO consultation 10/77, O2 Ireland believes that Universal Service provisions are out dated given the level of platform competition available in Ireland and also the fact that the National Broadband scheme has now been rolled out to 1,028 (out of a total of 3,440) Electoral Divisions throughout the country. In addition, O2 Ireland is particularly concerned by the focus of ComReg's current USO work and reserves its right to challenge any proposed decision by Comreg at this late stage to introduce a Universal Service Fund. Comments made by O2 Ireland in relation to Principles and Methodologies are therefore made without prejudice to O2 Irelands views on USO funding.

Scope of Universal Service Obligation

The concept of Universal service needs to evolve with the changing digital environment. Current policies and practices are already outdated when viewed in the light of technological developments and the dynamic nature of the telecoms sector. We believe that the USO is no longer needed in its traditional capacity and that its continued application to competitive markets carries a significant risk of inefficient application of funds and market distortion. However we acknowledge that for a very small number of customers (disabled customers, those on low income and those living in geographically remote and isolated areas) access to services can be in some cases problematic.

We believe that in such cases the **aim of Universal Service** should be the provision of those services, and only those services, needed to avoid "social exclusion". On the basis of Annex 5[1] of the USD many of the services mentioned in the Universal Services Directive are superfluous and should be phased out from the scope of the Universal Service in Ireland.

[1] Annexe 5: In considering whether a review of the scope of universal service obligations should be undertaken, the Commission is to take into consideration the following elements:

- social and market developments in terms of the services used by consumers,
- social and market developments in terms of the availability and choice of services to consumers,
- technological developments in terms of the way services are provided to consumers.

Taking into account the above mentioned criteria, we believe that:-

- *Fixed Voice services* have almost been universalized by other more efficient technologies and services (e.g. mobile). ComReg should thus re-analyse the feasibility of removing the voice service obligation;
- *Facsimile (fax) communications* - this obligation where there are other alternatives (e mail etc) should be phased out;

Enable supply of services

Telefonica O2 Ireland believes ComReg and the Government's work should then be focused on enabling supply of services. Firstly reviewing potential barriers to access including

- ensuring the availability of spectrum at low frequency bands through **refarming and access to the Digital Dividend** spectrum
- permitting **network sharing and new investment models**
- enabling fair returns on investment **taking account of level of risk**
- streamlining **planning** procedures

Financing Universal Service

To the extent that coverage gaps remain, then one-off government supports for network investment provided on a **contestable**, **technology-neutral** basis, (such as the National Broadband scheme) are likely to be the most economically efficient means to address such gaps. Direct funding by government would ensure that there is a focus on minimizing expenditure and maximizing efficiency, by providing better cost / benefit assessments and ensuring that Universal Service is provided by the most efficient technology and operator.

Finally, as stated in our response to USO consultation 10/77 it is now clear that ComReg intends to make retrospective requests for funding should the case for funding be made in the final USO decision probably sometime in 2012. If this is the case O2 wishes again to make it absolutely clear that any such requests will be resolutely resisted. We also again request ComReg to now clearly state the legal basis on which any such retrospective funding request would be made.

Q. 1 . D o y ou c onsider thi s H CA-based appro ach to b e ap propriate? P lease provide reasons for your view.

On b alance O 2 ag rees that a HCA-based approach is appropriate however, w e would reiterate the requirement that the USP's historic costs need to be properly and transparently adjusted for inefficiencies. Inefficiency adjustments need to be made to the Technology / Capex, Opex and Overhead costs. ComReg needs to clearly state in advance how this will be achieved. We would also agree with ComReg's view that appropriate and trans parent allocation rules will need to be set for common and joint costs when assessing the cost of the Universal Service Obligation.

Q. 2. How in your view, should capital expenditure invested by the USP in the past, in respect of potentially uneconomic USO elements/services, be treated for the purposes of a correct identification of the avoidable costs in the net cost calculation? What, in your view, are the appropriate principles for cost recovery in this regard?

O2 agrees with ComReg's preliminary view that the fixed common costs and joint costs, with respect to the provision of services over the access and core networks, should not be included as avoidable costs as the USP would not reduce its fixed common and joint costs if it were not required to provide connections to customers in uneconomic areas, or uneconomic customers in economic a reas a s t hese co sts a re a lso g enerated b y se rving e conomic customers and economic areas.

Q. 3. Do you agree or disagree with the approach proposed above? Please provide reasons for your view.

O2 agrees with ComReg's preliminary view that the USO revenues should be calculated on the basis of both the direct and indirect revenues that an operator would forego as a result of ceasing to provide services to "non-viable customers.

Q. 4. Do you consider the issue of replacement calls to be a material issue? If so, please explain your reasoning. What measurement / methodology do you consider ap propriate that wo uld pro vide a f air re flective m easure o f such revenues? Please provide reasons for your view.

O2 does not believe that this would be significant.

Q. 5. Are there other revenues related to the "non-viable" customers lines, not mentioned above (either direct or indirect), which you consider relevant and that should be included in the net cost calculation? If so, please explain and provide examples.

No comment.

Q. 6 . W hat are y our v iews re garding th e p otential tre atment o f "c atch-up" investment (which may include CAPEX and OPEX)?

O2 understands the issues being referred to by ComReg in questions 6,7 and 8 however we wo uld like m ore quanti tative information on t he p otential s cale of any such catch up adjustments before committing to a preferred treatment, in particular the proportion of the total cost that these catch up adjustments could be expected to account for.

Q. 7. What do you consider the most equitable allocation option is for "catch-up" investment? Do you have a preferred or alterative methodology that you wish to propose? If so, please explain in detail your reasoning.

See response to Q.6

Q. 8. What are your views regarding the potential creation of a delayed payment scheme or sinking fund to account for circumstances where the USP is directed to recover the net cost (as appropriate and as determined by ComReg) over a period gre ater than the re maining duration o f the U SP de signation? Please provide reasons for your view.

See response to Q.6

Q. 9. What are your views regarding the treatment of uneconomic customers in economic areas and what do you consider to be the most appropriate methodology that c ould identify the av oidable c ost in re lation to une conomic lines in economic areas? Please provide reasoning to support your views.

O2 agre es that it w ould be i nappropriate to i nclude the av oidable c osts o f customers who were recognised as uneconomic customers upon the original installation and subsequently have now become viable customers. The main reason for e xcluding this e lement is b ased o n the f act that w ith the i ncreased

number of housing developments in recent years, the access network has been further utilised and economies of scope have been created.

Q. 10. How would you propose that the Net Present Value of uneconomic end-users is assessed to ensure there is no over-recovery of costs over the average lifetime of those particular customers identified? Please provide reasons to support your view.

In general O2 believes that the Ofcom approach to calculating the NPV is reasonable i.e. Over a 5 year life cycle calculate;

- the number of "loss making" customers and their net costs.
- the proportion of those likely to become profitable subsequently.
- the net present value of such profits; and
- the proportion of such subscribers whom the USP would keep

Q.11. Do respondents believe each of the benefits listed above are pertinent to the net cost calculation in Ireland? Please provide reasons to support your view.

O2 believes each of the benefits listed are pertinent to the net cost calculation in Ireland

Q. 12. What method or combination of methods for calculating the individual benefits do respondents consider to be the most appropriate? Please provide reasons to support your view.

As per response to Q.10, O2 believes that the Ofcom's approach to calculating the benefits is reasonable.

Q. 13. What data (and from what sources) will ComReg require to most accurately estimate the benefits? Please provide reasons to support your view.

No comment.

Q. 14. Do you agree with ComReg's view that where a positive net cost is relatively small, ComReg should assess whether or not the costs of establishing and implementing a sharing mechanism would be disproportionate to the net

transfers to the USP to decide on the existence of an unfair burden? Please provide reasons to support your view.

Yes, O2 agrees with ComReg's view that where a positive net cost is relatively small, ComReg should assess whether or not the costs of establishing and implementing a sharing mechanism would be disproportionate to the net transfers to the USP to decide on the existence of an unfair burden.

Q. 15. Do you agree with ComReg's proposed approach (profitability and competition assessments) to decide on the existence of an unfair burden on a USP?

O2 broadly agrees with ComReg's proposed approach (profitability and competition assessments) to decide on the existence of an unfair burden on a USP.

Q. 16. Do you consider that the identified range of profitability and competition criteria are objective and appropriate for assessing the issue of unfair burden? Are there other criteria that should also be considered?

Yes, O2 considers that the identified range of profitability and competition criteria are objective and appropriate for assessing the issue of unfair burden

Q. 17. Do you agree with ComReg that a cumulative impression of static and dynamic criteria is more appropriate than adopting a particular quantitative threshold for key criteria to assess unfair burden? Please provide reasons to support your view.

O2 agrees with ComReg that a cumulative impression of static and dynamic criteria is more appropriate than adopting a particular quantitative threshold for key criteria to assess unfair burden however, as stated in our response to USO 10/77 we believe that certain key static criteria such as % of total Profit and Revenue have advantages of clarity and transparency and as such should be given prominence.

Q. 18. Do you agree with ComReg's preliminary view that, in relation to the period 1 July 2009 to 30 June 2010, any request for funding, together with supporting information that is sufficient to support its request, should be

submitted to ComReg by 31 August 2011. If not, please provide reasons to support your view.

O2 believes that this period is far too long as it is likely that a decision on whether funding is required would then not take place until sometime in 2012, up to 3 years after the period to which the assessment applies. Given the complexities of the calculation it is virtually impossible for operators to assess the likelihood of having to make a contribution and consequently to make appropriate accounting entries. It is unreasonable to expect operators to carry such a potential but unquantifiable liability for so long.

Q. 19. Please provide any general comments or observations that you may have in relation to the above.

No comment.

Q. 20. Please provide particular comments in relation to the type of information that is likely to be (reasonably) considered confidential or commercially sensitive.

No comment.

Q. 21. Please provide your views in relation to the establishment of a "confidentiality ring" in certain instances.

O2 sees little merit in ComReg's proposal that the rights of all stakeholders could be properly vindicated by the establishment of a "confidentiality ring" as under such an arrangement, only third party advisers (e.g. external experts such as economists, accountants) of the stakeholder would be granted access to review data/information on behalf of the stakeholder. However, those stakeholders would not be granted direct access. This would put operators without external advisors on this issue at a significant disadvantage and O2 believes that in these recessionary times this could include the majority of operators.

In Summary; In summary and for avoidance of doubt O2 believes that the Universal service provisions are out dated and the concept of Universal service needs to evolve. Many of the services in the Universal services Directive are superfluous and should be phased out. We believe that Government and Regulators should instead focus on enabling the supply of services and that financing of Universal service should be done through direct one-off government supports for network investment on a contestable, technology-neutral basis, such as the National Broadband scheme. And finally we believe that it is imperative that ComReg now state clearly the legal basis and justifications for possible retrospective USO payments.

5 Vodafone

Vodafone Response to the ComReg Consultation on Costing of Universal Service Obligations: Principles and Methodologies

Ref. ComReg Document 10/94

Response Date: 20th Jan 2011

Response to Consultation Questions

Q1. Do you consider this HCA-based approach to be appropriate? Please provide reasons for your view.

In our response to 10\77, Vodafone stated that while we have no strong view on the optimal costing methodology, we believe that ComReg should consider the merits of a Long Run Average Incremental Costs ("LRAIC") approach in the interest of regulatory consistency and in line with the general approach adopted to the costing of other regulated services. However, we further stated that what was most important, irrespective of which methodology is used, is that ComReg take account to the greatest extent possible, all of the relevant factors that feed into the net cost calculations on the basis of the most up to date information available.

In 10/94, it is clear that ComReg is minded to use Historic Cost accounting ('HCA') on the basis that,

(a) The objective of the net cost calculation is to quantify the actual burden, if any, that was imposed on the USP, rather than to send a pricing signal to the market place, and
(b) That the actual costs suitably adjusted for efficiencies are more likely to reflect the specific costs incurred.

Given that ComReg is advocating this approach, it is imperative that there is a rigorous analysis of potential efficiency adjustments and a willingness to examine all aspects of possible efficiency adjustments including the use of alternative technologies, particularly wireless. This is required since it has become increasingly apparent that across the EU (and no less in Ireland), that mobile telephony is now the de facto universal service provider within current definitions. While ComReg has and will maintain in the future the policy objective of universal voice telephony access, in practice this has been reached not through fixed telephony and traditional USO schemes but as a result of mobile telephony. Furthermore, the use of mobile technology as an alternate means of meeting its USO objectives has for sometime been available to eircom on a country wide basis. This is achieved through a combination of services supported on Meteor mobile's network[1] and, where this was not possible due to lack of coverage, on the network of Meteor's national roaming partner[2]. While it is not possible to be specific at this stage as to the extent of the costs saving that would arise from the fulfilment of some USO obligations using mobile technologies instead of fixed, nevertheless through a combination of spectrum licensing and aggressive competition between the market players, the mobile phone is today all but ubiquitous both in terms of take-up and geographic coverage. This is a fact that simply cannot be ignored in considering the future of USO provision in Ireland.

In the absence of (more efficient) wireless technologies being incorporated in the proposed HCA model, ComReg could consider applying an optimisation discount until such technologies are able to be included in the cost model. This would have the advantage of producing a more accurate Net Cost in keeping with the "efficient service provider" standard required by the legislation.

[1] Meteor's network has been available to eircom since it was acquired in 2005.
[2] Meteor avail of national roaming on the Vodafone network allowing them to claim up to 99% population coverage.

It is clear that ComReg is proposing a pragmatic modelling approach which is entirely based on a combination of fixed wireline technology and historic costs and which avoids the requirement to account for current valuations as would be required in a forward-looking methodology. However, this approach ignores the fact that that there is a strong case to support the view that eircom is currently not fully optimised or efficient for the provision of at least some of its USO requirements. Indeed it is apparent from eircom's ongoing initiatives (mainly the ongoing reductions in staffing levels) that eircom themselves believe they are not delivering services in the most efficient manner. ComReg must therefore be rigorous in its application of appropriate discounts or efficiency adjustments.

Q2. How in your view, should capital expenditure invested by the USP in the past, in respect of potentially uneconomic USO elements/services, be treated for the purposes of a correct identification of the avoidable costs in the net cost calculation? What, in your view, are the appropriate principles for cost recovery in this regard?

Vodafone agrees in general with ComReg that the net cost calculations should be on the basis of all costs in the core and access networks that were unavoidable in the provision of USO services. ComReg is also correct to believe that more detailed and granular analysis may be required to assess the extent if any of some categories of potential avoidable costs such as those arising for the viable customers becoming unviable over time (and vice versa), the shared infrastructure between viable and unviable customers and best-practice engineering. Where common or joint costs would have been incurred in the absence of USO and where the cessation of USO does not entail the elimination of these costs, then clearly they should not be included as avoidable costs.

Q3. Do you agree or disagree with the approach proposed above? Please provide reasons for your view.

Vodafone agrees that the revenue calculation should be done on the basis of both direct and indirect revenue as identified by ComReg.

Q4. Do you consider the issue of replacement calls to be a material issue? If so, please explain your reasoning. What measurement/methodology do you consider appropriate that would provide a fair reflective measure of such revenues? Please provide reasons for your view.

Vodafone is happy that ComReg are minded to measure revenue arising from 'replacement calls' as defined. It is clear that this would have to be undertaken on the basis of detailed information received from the USP.

Q5. Are there other revenues related to the "non-viable" customers lines, not mentioned above (either direct or indirect), which you consider relevant and that should be included in the net cost calculation? If so, please explain and provide examples.

Vodafone believes retail revenues arising when eircom, Meteor, eircom mobile and E-mobile customers call eircom's USO customers should be included as part of the indirect revenue calculation. This is additional revenue accruing directly to eircom as a result of customers being

connected to the eircom network who would not have been capable of receiving calls (i.e. not likely to have been served in the absence of USO obligations). It is not apparent that the revenue from these calls will be accounted for in the wholesale element of indirect revenues.

Q6. What are your views regarding the potential treatment of "catch-up" investment (which may include CAPEX and OPEX)?

It is Vodafone's view that ComReg should disallow in total any costs associated in meeting USP performance targets irrespective of the time the investment occurs during the period of the designation. As part of the current wholesale regulatory regime, eircom is entitled to recover its regulated return on investment (RoI). This return is predicated on the assumption that eircom will make the necessary capital investments at the optimum time to ensure it continues to act in a rational and profit maximising fashion. Failure by eircom to invest in this manner is a result of eircom taking a business decision to accept higher opex costs in return for lower capital outlays at a given time or over a given period. Costs which subsequently are incurred rectifying past under-investment should not be deemed unavoidable but should instead be considered as arising from eircom commercial decisions.

Q7. What do you consider the most equitable allocation option is for "catch-up" investment? Do you have a preferred or alternative methodology that you wish to propose? If so, please explain in detail your reasoning.

Please see the answer to Q6.

Q8. What are your views regarding the potential creation of delayed payment scheme or sinking fund to account for circumstances where the USP is directed to recover the net cost (as appropriate and as determined by ComReg) over a period greater than the remaining duration of the USP designation? Please provide reasons for your view.

Please see the answer to Q6.

Q9. What are your views regarding the treatment of uneconomic customers in economic areas and what do you consider to be the most appropriate methodology that could identify the avoidable cost in relation to uneconomic lines in economic areas? Please provide reasoning to support your views.

Vodafone agrees with the model of avoidable costs and total revenues (as outlined in figure 6 and allowing for adjustments to costs and/or revenues which may occur as a result of responses to this consultation) as appropriate for the treatment of uneconomic customers and lines in economic areas.

We also believe that extracting the access cost per area from the Copper Access model is a practical approach to deriving the necessary granularity from the HCA data to deliver the required cost drivers in relation to both economic customers and lines in economic areas.

Q10. How would you propose that the Net Present Value of uneconomic end-users is assessed to ensure there is no over-recovery of costs over the average lifetime of those particular customers identified? Please provide reasons to support your view.

In the first instance, Vodafone believe ComReg should assess eircom's current profitability position for the supply of the relevant services including those provided to customers under USO. The outcome of this assessment would then determine if there is a requirement for ComReg to undertake further analysis in relation to the setting up of a funding mechanism.

Vodafone notes that ComReg has a bottom up cost model of eircom's access network. At a high level where the average line rental and connection cost exceeds the average bottom up cost of providing the access path then eircom is more than recovering the costs associated with the provisioning and maintenance of all access paths including those which are provided on foot of eircom's USO obligation.

In this regard Vodafone notes that even where an OAO orders an access path, which otherwise would have been subject to eircom's USP obligation, using the Single Billing – Wholesale Line Rental product eircom receives a payment which excludes eircom's avoidable retail costs and so still affords eircom the same network cost recovery margin as a line directly supplied by eircom on foot of its USP obligations.

As a first step in considering the materiality of any specific USO related costs, and whether detailed modelling of such costs is required, an assessment should be made as to whether at a global level the average unit revenue from the provision of the access path exceeds the average unit cost. If this is the case then in the round eircom has no deficit arising from the provision of USO and the costs associated with more detailed modelling of specific elements of the USO provision are not warranted.

Vodafone also notes that eircom has been designated as having SMP in the market for Retail Fixed Narrowband Access. Eircom's wholesale price is "retail minus" and excludes avoidable retail costs. Either this revenue input (which is embedded in eircom Retail's price) is sufficient to cover its total costs of provisioning including USO, or, it is insufficient to cover USO costs. In this second case eircom as SMP provider has placed on the market a product which is "below cost" This then raises issues under competition law and also raises issues as regards margin squeeze in the WPNIA market in respect of full LLU.

Notwithstanding the above, Vodafone notes that OFCOM have undertaken a similar analysis of uneconomic customers to ensure there is the appropriate level of cost recovery. Vodafone suggest that ComReg may consider the use of a similar methodology when undertaking the same analysis.

Q11. Do respondents believe each of the benefits listed above are pertinent to the net cost calculation in Ireland? Please provide reasons to support your view.

In Vodafone's response to ComReg Call for Inputs (ComReg Document 10/77), we outlined a number of benefits which could reasonably be assumed to derive to a provider of USO services. The list of benefits was extracted from USO reviews undertaken in a number of other jurisdictions. In 10\77, these benefits were identified as,

- **Ubiquity**

- **Customer Life**
- **Potential future sales of services**
- **Brand Recognition\Goodwill**
- **Marketing**
- **Payphone Advertising**
- **Network effects**
- **Volume discounts**

Vodafone remains of the view that these benefits should be evaluated to determine their materiality in respect of the net cost calculation. Vodafone note ComReg's intention to evaluate a subset of these potential benefits and urge ComReg to undertake, at a minimum, a preliminary analysis of the remaining benefits and to provide reasons why in ComReg's view they do not warrant inclusion in the net cost calculations.

Q12. What method or combination of methods for calculating the individual benefits do respondents consider to be the most appropriate? Please provide reasons to support your view.

For many of the benefits, a lack of information as to the extent and nature of the data that will be provided by the USP limits Vodafone ability to suggest what would prove to be a practical assessment methodology. However, as noted by ComReg, evaluations have been carried out in other jurisdictions using a variety of methods on the various categories of benefit. Vodafone agrees with ComReg that one or more of these methods should be applied in the case of each of the benefits. The additional cost associated with the use of multiple methods may be justified more in the case of benefits (such as brand value) where there is common NRA agreement that they represent the highest proportion of total additional benefit from a USO obligation.

Q13. What data (and from what sources) will ComReg require to most accurately estimate the benefits? Please provide reasons to support your view.

Vodafone believe that the primary source of data to be used in evaluating the benefits will come from the USP (indeed the onus is on the USP to supply all data requested by ComReg to support the net cost calculation if a claim is made for the establishment of a funding mechanism.) Secondary data sources such as ComReg's own survey data, other NRA information and established business valuation practice may all be required.

In response to 10/77, Vodafone specified a list of benefits which should be included in net cost calculation and suggested possible methods for evaluating the quantum involved. In summary, these were ;

Ubiquity - To determine the size of this benefit, an estimate could be made of the number of customers originally served using USO and who remain with eircom after moving and no longer requiring USO. This could be compared with the number of customers using eircom services and who do not require USO to obtain services. Another aspect of the benefit ubiquity is the ability to market one's organisation to business customers as being able to serve them in any location nation-wide. This claim may be particularly important in the case of businesses that in common with the USP have a national branch or operations network or with operations that are inherently likely to be present in sparsely populated or remote locations. It is possible that information could be gathered from the USP

Customer Life Cycle – This will have to be done using a combination of already established NRA models and the USP's own data.

Potential future sales of services - The benefit of being able to provide non-USO services in areas because of the infrastructure put in place as a result of USO operations and obligation. We believe this should be possible to quantify from eircom supplied data.

Brand Recognition\Goodwill –One possible approach to valuing this goodwill is to determine what proportion of the total advertising budget is spent on leveraging the USP's activity relating to servicing uneconomic areas or users. We believe this should be possible to quantify from eircom supplied data.

Marketing – One possible approach to valuing additional marketing is to determine what proportion of the total advertising budget is spent on leveraging the USP's activity relating to servicing uneconomic areas or users. We believe this should be possible to quantify from eircom supplied data.

Operational benefits – As the printed directory is likely to be retained by end-users until its annual replacement arrives, the inclusion in the printed telephone directory of eircom's operational contact information such as fault reporting and customer care is likely to confer advantages in respect of customer access to such facilities. The association between the directory and such information and the description of eircom services is likely to foster the perception of eircom as a "one-stop shop". This positioning is much more difficult for OAOs to achieve from a marketing perspective. The value could be estimated on the basis of the expenditure on additional information and advertising contained in the directory and not strictly required to facilitate the directories principal purpose i.e. as a source of telephone numbers.

Payphones - Eircom may use available space on payphones for its own advertising and this can be valued on the basis of the rates that apply to third parties which use the same space.

Network effects - The benefit arising from transactions between non- USO customers and USO customers served by the same exchange or network node. This benefit is in the form of increased profitability in serving the USO customers because service is provided to non-USO customers compared to the outcome that would arise if the non-USO were not served. This is essentially a 'network externality' which is a well recognized feature in many network services but can be particularly important in rural or isolated communities. While this effect may be difficult to measure, similar measurements have formed part of a number of telecommunications market reviews.

Volume discounts – This is the additional increment of discount on purchases for total operations that might be attributed to the volumes purchased for USO operations. This could include elements such as vehicles, cabling, plant relating to ducting or pole provision, tower construction etc. This information should be available from the USP's own accounts.

Q14. Do you agree with ComReg's view that where a positive net cost is relatively small, ComReg should assess whether or not the costs of establishing and implementing a sharing mechanism would be disproportionate to the net transfers to the USP to decide on the existence of an unfair burden? Please provide reasons to support your view.

Vodafone agree that where a positive net cost is relatively small, it may not be reasonable nor justified to establish and implement a sharing mechanism. Vodafone can foresee a range of interpretations as to what qualifies as 'relatively small' when coming to the assessment of a

material positive net cost. It cannot be that any positive net cost, no matter how insignificant, would require further ComReg analysis. However, ComReg could consider implementing a threshold point or range (perhaps determined as an absolute number, some proportion of total costs or some other metric) below which no further assessment is required.

Q15. Do you agree with ComReg's proposed approach (profitability and competition assessments) to decide on the existence of an unfair burden on a USP?

Vodafone agree with ComReg's approach.

Q16. Do you consider that the identified range of profitability and competition criteria are objective and appropriate for assessing the issue of unfair burden? Are there other criteria that should also be considered?

Vodafone agree that the identified range of profitability and competition criteria is appropriate and objective.

Q17. Do you agree with ComReg that a cumulative impression of static and dynamic criteria is more appropriate than adopting a particular quantitative threshold for key criteria to assess unfair burden? Please provide reasons to support your view.

Vodafone agree with ComReg's approach.

Q18. Do you agree with ComReg's preliminary view that, in relation to the period 1 July 2009 to 30 June 2010, any request for funding, together with supporting information that is sufficient to support its request, should be submitted to ComReg by 31 August 2011. If not, please provide reasons to support your view.

Yes.

Q19. Please provide any general comments or observations that you may have in relation to the above.

Q20. Please provide particular comments in relation to the type of information that is likely to be (reasonably) considered confidential or commercially sensitive.

In general, Vodafone endorses ComReg's approach on the confidential status of legal or regulatory policy argument or data input supplied by stakeholders. (Vodafone would reserve its position to assert confidentiality in exceptional cases in respect of these matters).

However, in cases such as this consultation where the outcome could entail the imposition of a funding mechanism on stakeholders and in the interest of fairness and equity, Vodafone believes

that ComReg should set a very high threshold before it considers information to be confidential and withheld from those for whom there could be a serious financial impact.

For example, Vodafone would not consider a USP's network information relating to uneconomic areas or lines to be confidential and to lead to any distortion of competition. In the event of a ComReg finding that a USO funding mechanism is required, Vodafone would expect to be in a position to review any ComReg models, with its related inputs and assumptions which were used to support the establishment of the sharing fund.

Q21. Please provide your views in relation to the establishment of a "confidentiality ring" in certain instances.

Vodafone agrees that in certain circumstances, there may be a requirement to establish 'confidentiality rings'. However, we refer to our answer to the previous question. Such mechanisms should only be used where there is a clear case that the supplier of the data may suffer a competitive disadvantage if the information was made more widely available.