4 September 2016

Cable & Wireless Limited, trading as FLOW ("**FLOW**") hereby submits the following comments in response to the Consultation Document "*Principles, methodologies and guidelines for the determination of interconnection rates*", issued by ECTEL as Consultation Document No. 3 of 2016 on 28 July 2016 (the "**Consultation Document**"). Failure to address a given issue raised by ECTEL in the Consultation Document should not necessarily be construed as FLOW's agreement with the positon taken by ECTEL on that issue.

Introduction

FLOW finds that the approach put forward by the ECTEL and its consultants in this Consultation Document in many ways provides a reasonable framework for the long-run incremental cost modeling for the interconnection rates in ECTEL Member State markets. However, in several aspects FLOW also believes that the proposed approach includes methodologies that will unduly increase the cost of mobile termination. Indeed, in several instances, ECTEL has chosen an asymmetrical approach to the measure of fixed termination and mobile termination costs. This is particularly problematic in light of the policy objective best practice regulators have made in recent years to bring termination rates of fixed and mobile networks closer together. FLOW believes that many of the proposals will serve to preserve the unjustifiably large difference between the two rates.

We also note that the ECTEL document does not take up the issue of the how interconnection service costs will be implemented as rates once the modeling proceeding is over. FLOW trusts that when issues such as structure of the rates (peak vs. off-peak, time of day, etc.) and the timing of the introduction of cost-based rates (e.g., glide paths), stakeholders will be given a chance to respond to any proposals.

Finally, by way of introductory comments, we note that we found it unusual that ECTEL assumes a bottom-up approach to modeling without consulting on the merits of the bottom-up over a top-down or hybrid approach. We do agree that ECTEL has little choice given the paucity of accounting data, and the advantages of the bottom-up approach, e.g., greater susceptibility to sensitivity analysis and transparency; however, ECTEL should have at least made the case for its stakeholders.

In the below, we respond to each of questions posed by ECTEL in the order that they appear in the Consultation Document.

Question 1: Do you agree that Network CapEx, Network OpEx, License, and spectrum fees, G&A Expenses and cost of capital should be included in the cost base of the BULRIC Models in the manner indicated in this section?

1.1. FLOW can agree with much of what ECTEL proposes in terms of what Network Capex, Network Opex, and G&A Costs should be included and that license fees, spectrum fees and costs of capital should be included in the calculation of LRIC+. However, we will not be able to understand fully the methodology on construction of the costs are until we see the actual model.

1.2. Furthermore, the ECTEL should confirm that Capex must include all the capitalized costs that go into installation and operationalizing the investments. So, it must include relevant transport, duties, capitalized labour (e.g., planning and installation) costs.

1.3. FLOW emphasizes that spectrum fees should be included with fixed network modelling as part of any microwave transmission cost.

1.4. Further, FLOW believes that, if significant, way fees for infrastructure deployment should be included just as duct and trenching costs would be.

1.5. With respect to Retail Costs, FLOW can agree with the proposed approach to exclude them from the modelling. However, ECTEL and its consultants must take care than any company-wide costs are adequately reduced to reflect the absence of a retail business. Indeed, FLOW is concerned that too much cost (G&A cost, for example) may be introduced to the model as no operator, hypothetical or otherwise, in these markets runs without a retail business.

1.6. With respect to the cost of capital, we urge the ECTEL to introduce the principle that there is no reason to believe that the cost of capital is different between fixed and mobile networks. The reasons for this are at least threefold. First, the means of delivering mobile services involves increasing amounts of fixed infrastructure. In many countries, the rapidly escalating capacity required to provide high-quality mobile broadband services is leading to decreasing cell radii (implying more fibre backhaul) and an escalating off-loading of traffic to fixed fibre networks. Thus, although the access networks are distinguishable, little else is.

1.7. Second, with respect to the access networks, there is no logical reason why, going-forward, a mobile access network would warrant a greater risk premium than a fixed one, particularly given the uncertainty concerning fixed broadband take up. Given the emphasis placed in the Consultation Document on establishing a forward-looking estimate of the WACC, we believe it is necessary to establish a single estimate of the WACC for all telecommunications operators in ECTEL markets, in order to promote efficiency and provide a level playing field.

Question 2: Do you agree with the ECTELs proposal on the treatment of OpEx in the BULRIC Models?

2.1. ECTEL proposes that OpEx "preferably be based on bottom-up calculations in those cases where such bottom-up determination of OpEx is feasible and adequate data is available." It is difficult to evaluate this proposal without a more concrete exposition of how ECTEL proposes to implement a bottom-up calculation for network opex categories. FLOW agrees that a bottom-up calculation, in theory, would be a more methodologically consistent objective. However, because it is not clear what a bottom-up calculation would look like--even where ECTEL believes that it has "feasible" and has "adequate" data for such calculation--the results should be cross-checked with benchmark expense factors.

2.2. ECTEL proposes that the G&A costs reflect an assumption that the fixed and mobile operations of the reference operators are shared, and that only the percentage of G&A costs attributable to the network be considered. We agree with this approach.

Question 3: Do you agree with the ECTEL's view in how assets should be valued and the proposed application of the modern equivalent assets?

3.1. FLOW agrees that the static CCA approach is an appropriate choice for valuing assets, as we are assuming the cost of network build today.

3.2. However, while FLOW generally agrees that modern equivalent assets be used in the modeling, we believe that, with respect to NGN technology and transmission, a hybrid approach should be used in order to capture the state of the fixed network in the coming years. We discuss this hybrid (migration) approach in our response to Question 16 below.

3.3. We note that ECTEL implies in its citation of the ITU's Accounting guide that a new entrant would not commonly install traditional switching nodes, and thus it would not be appropriate to model traditional switching; however, ECTEL also implies with its citation of the 2009 European Commission recommendation (in footnote 11 in section 2.3.1) that the assumption of a new entrant operating a national network can be justified with a complementary assumption that a new entrant could gain a national scale through "purchase of wholesale [network] inputs". In the case of ECTEL member markets, were the new entrant to do so it would have to purchase a significant amount of traditional switching and TDM transmission from the incumbent as that is still a widespread technology for fixed voice in the region.

Question 4: Do you agree with the ECTEL's view to implement tilted annuities in the BULRIC cost models? In the case that you have a different view, please support it with rationale.

4.1. FLOW agrees that the tilted annuity approach strikes the best balance between economic appropriateness and ease of implementation. Based on ECTEL's description, we assume that it would apply the following formula:

$$\frac{WACC - \Delta p}{1 - \left(\frac{1+\Delta p}{1+WACC}\right)^{Asset\ life}} \times Asset\ Value$$

where,

- *WACC = the weighted average cost of capital;*
- *Δp = rate of price change ("tilt");*
- *Asset Value = the current investment cost of the asset; and*
- *Asset Life = the useful life of the asset.*

Question 5: Do you agree with the ECTEL with the proposed approach for the consideration of working capital?

5.1. With respect to CapEx-related working capital, FLOW agrees that it should be included in the model, and it is adequately captured via ECTEL proposed "planning-horizon" concept.

5.2. Further, FLOW agrees with the proposed approach to Network OpEx Working Capital whereby, if the information provided by the operators robustly indicates a significant amount of working capital is incurred, an efficient magnitude should be included in the model. It is not entirely clear from the Consultation Document how Network OpEx Working Capital will be introduced into the model, but we will comment on its application during the consultation on the draft model itself.

Question 6: Do you agree with the use of LRIC+ standard?

6.1. FLOW agrees LRIC+ is the standard that is most consistent with the Telecommunications (Interconnection) Regulations.

Question 7: Do you agree with the suggested treatment of common cost under the LRIC+ standard in the BULRIC Models?

7.1. With respect to the allocation of joint and common costs for the LRIC+ Standard, FLOW believes that network joint and common costs should be allocated according to the Shapley-Shubik approach. FLOW agrees that an Equi-Proportional Mark-up (EPMU) could lead to distorted results and would be highly unusual for network common cost allocation. We also agree that Ramsey pricing is difficult to implement and, again, would be a highly unusual approach.

7.2. However, of the two common practices—capacity or Shapley-Shubik—we disagree that the Shapley-Shubik is overly complex to implement. We also disagree that the capacity approach more accurately represents how network-related common costs should be shared among services. Shapley-Shubik provides a fairer treatment of allocation by taking into account the different possible outcomes of the order in which increments are provided. In the context of LRIC modeling, we believe, the capacity approach less accurately represents how common network common costs are shared than Shapley-Shubik.

7.3. With respect to non-network common costs, FLOW agrees with the proposal to apply EPMU, as this is a typical, straightforward approach.

Question 8: Do you agree with the use of a yearly approach for network optimization?

8.1. FLOW agrees that a "yearly approach" to dimensioning the network for the derivation of service costs for each year is consistent with best practice.

Question 9: Do you agree with the time period defined (i.e. from 2015 to 2020)?

9.1. FLOW agrees with the proposal to model a period of 2015-2020. However, ECTEL does not state specifically for which years, of those modeled, it intends to set interconnection rates. We assume ECTEL will be setting rates for four years, 2017-2020. Setting rates for a period of 4-5 years is consistent with international practice and strikes a balance between the need to track the cost-base but avoid overly frequent rate-setting proceedings.

9.2. Given that this proceeding is long overdue (the previous regime was never intended to last, nor should have lasted, eight years), we urge these rates to be implemented for the beginning of 2017 even if the modeling, and therewith the final rate determination, spills over into 2017. If ECTEL notifies the stakeholders in advance that these rates will apply from the beginning of 2017, then operators can plan for any retrospective payments for the months of 2017 that precede ECTEL's final rate determination.

Question 10: Do you agree with the treatment of data sources described in this section?

10.1. FLOW agrees that information provided by relevant operators in the ECTEL markets should be the primary and preferential source of data to populate and calibrate the BULRIC model. However, ECTEL must be very careful about the appropriateness of the information from operators for certain facets of the modeling. For example, just because an operator offers a fixed voice service does not necessarily qualify its inputs as appropriate for this exercise. Those inputs must be truly representative.

10.2. With respect to the process of data gathering, we can agree in a general sense with the need to adopt international benchmarks if data provided by the operators are not sufficiently reliable or simply cannot be provided by them. However, two important aspects should be added to the proposed process:

i. The time element--Stakeholders should be able to supply data throughout the modeling process as data needs are identified and sources become available; and

ii. Benchmark vetting—Stakeholders must be able to vet any international benchmarks proposed.

Question 11: Do you agree with the reference operator and its characteristics (e.g., demand, spectrum, coverage) described above?

11.1. FLOW agrees with ECTEL's proposal to use a hypothetical efficient operator for the mobile network modelling. However, we disagree with the assumption for demand, i.e., of 33% market share. We disagree for three reasons. First, it runs contrary to reality, as ECTEL itself admits three operator markets are a minority in ECTEL Member States.

11.2. Second, ECTEL states that making a smaller market share will make the market more attractive to a possible new entrant in those Member States. This is an assertion that, aside from being totally unsupported, is of dubious accuracy from a factual or policy point of view. For example, it is quite possible that the artificially high mobile termination rates, which a smaller market share assumption would promote, will lead to a MORE difficult business environment for new entrants, as they will be net senders of traffic during the first critical years of existence. Furthermore, more generally, from a policy point of view, ECTEL should not be in the business of raising costs in the mobile sector to favor certain operators over others.

11.3. As a compromise, we propose that, as any of the ECTEL markets over the period could find itself with either 2 or 3 entrants, ECTEL should take a probabilistic approach to market share: the market share for the hypothetical operator could be set as the weighted average of the market shares of all markets, e.g., (3/5*50%) + (2/5*33%)= 43.2%.

11.4. With respect to Spectrum, FLOW can agree that the spectrum allocation of the reference operators should be assumed to be a percentage of the spectrum available in each band in the market and consistent with its market share.

11.5. With respect to network coverage, we have three comments.

i. First, we believe that the fundamental assumption for network coverage must be that existing coverage obligations are satisfied.

ii. Second, we are happy to accept that the market is addressed with 2G, 3G and 4G technologies; however, in order to be symmetric in cross-technology assumptions, if this assumption is made for the mobile sector, there should be an implication for an evolution assumed for the fixed network. We address this more in our comments on the fixed network questions below.

iii. Third, it is critical to test the assumption, and implement if cost reducing, that large parts of the core network may be shared among the islands as was done for the Existing Models and as is currently practiced by the mobile operators in the region.

Question 12: Do you agree with the proposed list of services and the grouping of services into increments for the BULRIC model for mobile networks?

12.1. FLOW agrees with the services and increments identified for modelling.

Question 13: Do you agree with the ECTEL's approach for Mobile Network Modelling?

13.1. ECTEL's approach to Mobile Network Design is made up of five discrete proposals, which, for convenience, we identify as Proposals 13/1 to 13/5.

13.2. **Proposal 13/1.** ECTEL proposes a "scorched node approach" to the access network and a "modified scorched node approach" for the core network. FLOW finds ECTEL's proposal in this regard reasonable.

13.3. **Proposal 13/2.** We agree that the geographic modeling that ECTEL proposes is reasonable; however, ECTEL may find that it is unnecessary to define all eight geotypes for each ECTEL Member State market—such a refinement may not be necessary.

13.4. **Proposal 13/3.** With respect to the radio technologies to be modeled, as indicated above FLOW is ok with the GSM/UMTS/LTE migration approach, so long as this migration approach is carried over in a symmetric manner to the approach applied to the fixed network. Furthermore, the modeling should ensure that data carried over UMTS is only transitioned to LTE if such a transition reduces the unit costs of service. This is to say that the migration to LTE should occur only as it makes sense for the operator to do so financially.

13.5. We also strongly agree that co-location of different technologies should be built into the model.

13.6. **Proposal 13/4.** ECTEL proposes 3Gpp technology for 2G and 3G radio access networks and an evolved core for 4G access. Although FLOW does not have anything against this assumption *per se*, we highlight again the asymmetry in the proposed treatment of

technology migration in the mobile vs. fixed network. FLOW finds this difference in treatment unjustified. FLOW's proposals in response to Question 16 below suggests how the symmetry can be restored.

13.7. **Proposal 13/5.** FLOW finds the ECTEL proposals regarding transmission technologies unclear or under-specified. Firstly, in the case of the backbone transmission network, it is unclear what ECTEL means by "[t]hese links will be dimensioned by reproducing the actual configurations of the Operators, both in terms of topology and technology." How is this statement consistent with scorched earth location of radio sites and modified scorched nodes in core. Secondly, we are not clear about "leased lines" as a transmission technology: how is this consistent with the discussion of transmission technologies for the fixed network, e.g., in terms of SDH fibre, native Ethernet fibre or WDM fibre?

13.8. **Proposal 13/6.** FLOW strongly supports an assumption implementing site-sharing in the BULRIC models, but is disappointed that ECTEL did not specify how site-sharing will be determined. ECTEL should make this clear and allow stakeholders to weigh in on the assumption.

Question 14: Do you agree with the ECTEL that the BULRIC model for fixed networks should consider a reference operator with the characteristics described above?

14.1. FLOW agrees that the reference operator should be a fixed operator with demand similar to the incumbent fixed operator. We concur that this is most common international practice. It also simplifies the assumptions for model implementation. However, we disagree that the reference operator should modeled combining "copper and HFC networks". We disagree for reasons of practical application as well as principle.

14.2. First, we note the asymmetry in the proposed approach between the mobile and fixed networks. ECTEL acknowledges that in a majority of the ECTEL Member States, there are only two mobile networks, yet it proposes the assumption that the reference operator only has a third market share. Here, with respect to the fixed network, although ECTEL acknowledges there is "there is one main fixed-line player with national coverage which is based on a copper-based access network and at least on one Hybrid Fibre-Coaxial (HFC) access network provider", it proposes to give the reference operator 100% market share. As we have argued before, not only is this approach unjustifiably asymmetric from the perspective of principle, the practical impact will be to drive greater divergence between the unit costs of interconnection services on fixed vs. mobile, and therewith the interconnection rates. This is contrary to best practice.

14.3. Second, we note that ECTEL's main reason for assuming a combined customer base of both the copper based provider and the HFC providers is that "the copper-access provider and the main HFC provider have merged in all Member States." As it has been informed to ECTEL, there are plans to migrate customers from the copper access provide to the more modern HFC access networks." This is true, but it is also true that the migration of access networks and telephony, internet and TV services will be an extended process over which time major portions of telco and cable TV network will remain separate. How, from a network perspective, that migration will take place is very uncertain.

14.4. Third, the fact that these networks were separate up until 2016 means that the data requested by ECTEL and used for the first year of the modelled period, 2015, will not be representative for subsequent years.

14.5. Fourth, assuming the national operator based on LIME's operation pre-merger will be much simpler and fully representative of a national fixed network, the data from the voice and data services of the LIME fixed national network from 2015 will serve as a more robust basis for modeling and will avoid having to make assumptions about which access nodes would be included and how TV service demand will evolve over time.

14.6. Finally, it was for these reasons that the regulators in both Jamaica and Barbados chose to assume the pre-merger LIME network in recent modeling exercises (Jamaica Fixed LRIC model and Barbados Price Cap model, respectively). In the on-going Jamaican fixed LRIC proceeding, the Office of Utilities Regulation reasoned as follows:

… to be able to represent such a scenario [of modeling a merged network], it is required that the OUR has [sic] a clear visibility of any merging plans (for instance, the final list of nodes that would be operative if the merging process is closed and the final topology). However, trying to analyse this issue at this stage of the merging process would involve an exercise that is too theoretical and that may have relevant impact in the model results…. [t]he OUR considers that a more practicable approach is not to consider such a merge at this stage.[1]

Question 15: Do you agree with the proposed list of services and increments for the BULRIC model for fixed networks?

15.1. Based on our reasoning above, we believe that the model should exclude the TV service, in particular the "TV channels" included in other services in section C.2 of Annex C. Otherwise, FLOW agrees with the proposed increments.

Question 16: Do you agree with the ECTEL's approach for Fixed Network Modelling?

16.1. There are a number of points with which FLOW agree with ECTEL's Fixed Network Design proposals; however, ECTEL has left some issues unaddressed, and made some proposals that are not appropriate, could be improved upon or are underspecified.

16.2. First, we are concerned that ECTEL has not discussed the boundary between the access and core network. We consider this a fundamental, though non-controversial, methodological issue, and indeed it is addressed in most network modeling consultations. The standard demarcation point between the access and core network is the line card in the access node, i.e., the access network would include the assets between the customer's premise up to and including the line card; the core network would include facilities "above" the line card. FLOW would agree with this point of demarcation.

16.3. More worrisome is that fact that in Exhibit 6, MSANs are wholly included in the Access network, which runs counter to LRIC modeling experience (including those models identified in Annex G). We trust that ECTEL is not proposing to exclude all MSAN costs from the core network costs.

[1] "Cost Model for Fixed Termination Rates – Principles and Methodology: Methodology Document", Office of Utilities Regulation, 1 July 2015, p. 44.

16.4. Second, with respect to ECTEL's proposals, we have a number of comments. For ease of exposition, we break down ECTELs statements on Fixed Network Design into five discrete proposals, 16/1 to 16/5.

16.5. **Proposal 16/1.** ECTEL proposes a "modified scorched node approach" in which it assumes that: "the nodes considered in the model are those in the HFC network plus the copper-based nodes in the areas not covered by the network."

16.6. FLOW finds this ECTEL proposal problematic in a number of ways:

i. It is inconsistent with the actual evolution of the network. In these markets, the HFC network was never a fully national network as was the case with the LIME fixed network. To assume the HFC network is the base network and back-fill with the "copper-based access nodes" is not logical and is susceptible to large errors in the coverage of the hypothetical network.

ii. Even if using the HFC network as a base, it cannot be said that the current access nodes would be in the proper location and number. It is important to keep in mind that comparing FLOW's HFC network and LIME's network is like comparing apples and oranges.[2] None of that difference appears reflected in ECTEL's Consultation Document. Moreover, It is true that the merger may impact the location of nodes, but it will not impact the number of nodes, which will have to be significantly greater than the number of nodes that LIME operated pre-merger.

iii. But also, if ECTEL reverts to a more sensible route of using TDM and Multi-Service Access Nodes (MSAN) locations as a starting point, ECTEL would have to make allowance for changes in locations and numbers. MSANs providing broadband services are required to be closer to subscribers than legacy remotes. Therefore, in any case, many more access nodes will be needed in the model than are currently deployed by FLOW.

iv. Relatedly, there is no recognition of that fact current penetration of modern access node in the ECTEL Member Nations is likely to be far lower than the overwhelming majority of the benchmark countries cited in the Supporting Annex. In at least three of the benchmark countries (Cayman, Jamaica and the Existing Models) provision had to be made for increasing the number of access nodes in acknowledgement that the transition to a converged voice and data network would require more access nodes than the transitional TDM + IP state.

v. At times, ECTEL appears to believe that the deployment of the access network has no impact on the cost of the core network. In Exhibit 6 the access network is termed "irrelevant" for fixed interconnection. We do not agree that the access network is irrelevant to core network costs. The type of access network will determine the number and type of access nodes required, which, in turn, will influence core network costs.

16.7. **Proposal 16/2.** We agree that the geographic modeling, in terms of geotypes, is a useful feature to include in the model.

[2] For example, The access layer of a cable TV network is a shared medium, thus a) most of it is traffic sensitive and b) the demarcation point between traffic sensitive and non-traffic sensitive network elements is much closer to the customer than in a telco network.

16.8. **Proposal 16/3.** For the "core network technology" ECTEL proposes an all-IP network with media gateways to provide TDM connectivity for connection with traditional networks. FLOW disagrees with the proposed approach for three reasons:

i. ECTEL Member Nations do not have an all-IP core network for voice carriage;

ii. There is no clear benchmark on this aspect of LRIC modelling. The ECTEL's own benchmarking shows that eight out of sixteen benchmarked models used TDM legacy network for core network technology; and

iii. The proposal is inconsistent with the approach taken in the approach proposed for the mobile network. The assumption for that model is a legacy 3Gpp/Evolved Core hybrid despite the fact that a new entrant would be unlikely to deploy legacy technology. This is another example of the asymmetry in the ECTEL approach between mobile and fixed network modeling.

16.9 FLOW proposes, instead, a forward-looking view of modeling of the fixed network that is more consistent with the realities of deployment and the "migration approach" found in its proposed mobile LRIC modeling as well as that found in other benchmark models, including the current Jamaican fixed network LRIC exercise recently. ECTEL should apply a TDM to NGN migration profile into the model. ECTEL's consultants are very familiar with this approach.

16.10 In this approach, all traffic would end up in the NGN core, but more realistically a certain proportion of TDM access (remotes) and distribution nodes (local switches) would be retained linked to the IP core through media-gateways. This proportion would diminish over the modeling period.

16.11 The migration would be effected by replacement of the DSLAMs and Remotes (RSXs) with MSANs that would converge voice and data at the access layer, over the modeling period.

16.12 The migration functionality is no more difficult to implement that the 2G to 4G migration proposed ECTEL for the LRIC modeling for the mobile network.

16.13 **Proposal 16/4.** ECTEL presents a preliminary list of network elements to be modeled for the core network in Annex E.

16.14 At this point FLOW has only four comments on the list of network elements in Annex E:

i. there are no access node elements found in this list;

ii. this list would naturally have to change were the assumptions regarding the core network and/or transmission technology to change;

iii. "the devil is in the details"--these components are not well defined and, if complete, would imply that they aggregate together sub-elements. We will have to be very careful to ensure that all relevant costs are captured by this list; and

iv. how these network components are to be articulated may depend heavily on what bill of sales and invoices are found.

16.15 **Proposal 16/5.** ECTEL proposes "to consider Native Ethernet fibre transmission" and "WDM Fibre technologies" and the microwave links should be "used for the connection of remote nodes for which this technology is more cost-efficient than fibre links."

16.16 FLOW disagrees with the proposed approach and many of our points mirror that made under Proposal 16/4 above:

i. Much of the core network transmission supporting voice traffic in ECTEL Member networks are SDH, not Ethernet or WDM;

ii. There is no clear benchmark on this score. In the ECTEL's own benchmarking many of benchmarked models used SDH fibre transmission in the core; and

iii. The proposal is inconsistent with the approach taken for the approach to the mobile network. In the proposed mobile approach, the assumption is a hybrid of 2G/3G/4G technology reflecting the reality on the ground of 2G still carrying the majority of the traffic despite the fact that a new entrant would be unlikely to deploy 2G technology.

iv. it is difficult to understand what ECTEL is proposing exactly. For example, on what basis will it determine whether to assume Native Ethernet or WDM Fibre? How will it determine whether microwave links are more effective than fibre?

16.17 FLOW therefore proposes that a hybrid approach is implemented whereby SDH fibre transmission is utilized between TDM access nodes and the Core, WDM or Ethernet for DSLAM and MSAN transmission to the edge and WDM rings for edge, distribution and core layers. As discussed above, as TDM access nodes are migrated to MSANs, the transmission will migrate from SDH to the same transmission technology as the IP network.

16.18 Again this migration is not complex and would be consistent with the 2G to 3G to 4G migration in the proposed approach to the mobile modeling.

16.19 Finally, we note that there are some issues that we would have expected to find discussion of in the Fixed Network Design section of this Consultation Document, but did not. For example, ECTEL does not discuss how it proposes to configure the core layer above the access nodes, nor how it proposes to derive duct and fibre lengths in the model. We assume that we will be given an opportunity to comment on all these methodological questions before model construction.