



Tom Reynolds
Ofcom
Riverside House, 2a Southwark Bridge Road
London, SE1 9HA

27 March 2018

Dear Tom,

Wholesale Local Access Charge Control Cost Modelling – External Review

In accordance with the terms of reference agreed between Plum and Ofcom, Plum has carried out an independent and external review on a set of draft regulatory cost models and associated documentation, pertaining to the wholesale local access (WLA) market review, specifically the WLA charge control (WLACC) in the UK.

Our review included assessment on a total of seven draft modelling files and eight accompanying documents, the final versions of which we understand Ofcom will publish as part of the final WLA Statement. The review files and documents were provided to us by Ofcom during the week commencing 15 January 2018, and covered three main areas: common modelling elements, Bottom-Up (BU) Long Run Incremental Cost (LRIC) pertaining to Fibre-To-The-Cabinet (FTTC) Generic Ethernet Access (GEA) services, and Top-Down (TD) LRIC pertaining to Metallic Path Facility (MPF) services.

Our focus has been to assess the quality of the modelling files against the documentation.

At Ofcom's request, our work was time bounded (to circa three calendar weeks), to accord with the schedule towards the final WLA Statement, planned for early 2018.

Key steps in our approach have been as below.

- Review of relevant documentation, as associated with modelling elements in scope.
- Review of modelling files, assessing structure, data flows, and linkages.
 - Running of hypothesis and scenario tests (inclusive of data flow analyses) across and within modelling files, where we have deemed these feasible, beneficial, and informative to the review.
 - Lower level review on modelling files, checking key data flows and calculations.
- Reporting of key findings in our draft report.
- Reporting of key findings in our final report, taking into account Ofcom's detailed written comments on our draft report.

Review limitations

Our review was focused on assessment of draft documents and modelling files provided to us by Ofcom, in order to assess quality of modelling work, with independent, external review. Final versions of documents and modelling files were not available at the time of our review, and hence these were not included in our review. Plum has not been involved in the development of the models and documents, at any time.

Our approach has been consistent with professional standards and methods typically deployed in modelling reviews of this type.

In alignment with the above, our review has not extended to comprehensive checks across all modelling files, data cells, and calculations formulae.

Our review has been based solely on documents and modelling files made available to us at the time of our review, and our review comments cease to be valid against any alternative versions.

As the form of the modelling files presented precluded us from running the suite of models in a fully integrated manner, we were not able to assess materiality of issues on resulting LRIC service costs and X values.

Summary of findings

Overall, with our review, Plum can confirm that the 2018 WLACC LRIC modelling files provided for review¹ were generally in good order, excepting a limited number of low-level errors and implementation faults.

We found a number of misalignments, between the documentation and the modelling files, on cost items that would have material impact on LRIC service costs and X values. We recommended that Ofcom review and address these, prior to publication of the 2018 WLACC statement.

Ofcom has since advised us in some detail that the issues raised have been addressed. However, we have not reviewed how these adjustments have been made.

Consequently, we are satisfied that all issues raised via our review have been addressed by Ofcom, prior to publication of the final WLA Statement.

Modelling files review

In our review on modelling files, we found no issues relating to the structure and overall integrity of the models. We did, however, find a limited number of low-level calculation and data linkage errors.

With our assessment on the common modelling elements, we found only some relatively minor documentation alignment issues.

In our assessments of both the BU and TD models, all of the hypothesis tests that we carried out confirmed modelling behaviour in accordance with our expectations. Lower (worksheet) level checks did reveal some calculation and data linkage errors.

¹ 2.Network Cost_v0.99.xlsx; 3.Cost Recovery.xlsm; 2016-17 repair costs.xlsx; 2016-17 WLA Base Year.xlsm; 2017 WLA Control Module.xlsm; WLA CPI-X Model.xlsx; WLA Volumes Module.xlsx.

For both BU and TD models, we recommended that routing (usage) factors be reviewed, given their materiality to modelling outputs.

Ofcom has subsequently advised us that all of these issues have been addressed.

Additional items identified for consideration

Through our review, we found some areas of misalignment between the documentation and modelling implementations.

Ofcom's documentation of the bottom-up approach to modelling Openreach's vectoring and transformation programme included costs arising from DSLAM electronics and head end equipment. The modelling and documentation we reviewed were not yet complete and hence were not consistent on this issue.

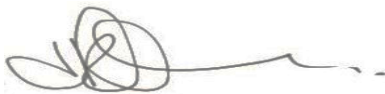
We also noted that the treatment of costs arising from OSS-BSS and general management (GM) items was not clear in the modelling files and documentation provided, and that whilst Ofcom's documentation referenced equipment maintenance cost efficiency improvements, there was no direct evidence of these being implemented in the model. Also, documentation addressing new sites and small cabinets was not particularly clear in our review versions.

With regard to the TD model, we noted some misalignments on repair cost levels and cost adjustment factors.

Again, Ofcom has subsequently advised us that all of these issues have been addressed.

This letter has been prepared solely for the information and benefit of Ofcom consistent with the terms and conditions of our engagement. No other party may place reliance on any matters contained herein.

Yours sincerely,

A handwritten signature in black ink, appearing to be "Ian Corden", written over a horizontal line.

Ian Corden

Director, Plum Consulting London LLP