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| **Cadent Final Determination** | | | |
| **FDQ Query** | | | |
|  | | **SQ Reference number** | CADENT\_FDQ\_22 | |
|  | | **Priority** | High | |
|  | | **Document Name** | Capex\_Synthetic\_Unit\_Cost\_Model & GD2\_SyntheticCosts | |
|  | | **Topic/Activity:** | Reinforcement and connections synthetic unit costs | |
|  | | **Question:** | We are reviewing the capex synthetic unit cost model and have identified an error with the reinforcement cost data used in the model. In addition, there are several areas of the model, where we would like to better understand the approach taken to apply the rules.  **1) Reinforcement mains costs**  We have identified an error in the capex\_synthetic\_unit\_cost model in relation to reinforcement unit costs. The file is not correctly pulling actual GD1 reinforcement mains costs for Sc and So into the analysis. For example, in the sheet Cal\_Reinforce\_GrossCosts Sc and So has no costs for general and specific reinforcement mains between 2013-14 and 2019-20. However, there are costs for these activities in its business plan table (recorded in the sub total line). Could you please confirm that this is an error.  We estimate that correcting for this error will have the following impact on the synthetic unit costs.   |  |  |  |  | | --- | --- | --- | --- | | **Industry Average** | **SGN data excluded** | **SGN data included** | **Difference** | | General\_Mains\_a. <=180mm | 299,346 | 286,833 | -12,513 | | General\_Mains\_b. >180mm | 552,383 | 529,293 | -23,089 | | **General\_Specific\_Mains\_a. <=180mm** | **309,408** | **303,836** | **-5,571** | | **General\_Specific\_Mains\_b. >180mm** | **452,789** | **454,864** | **2,075** | | Specific\_Mains\_a. <=180mm | 312,221 | 312,221 | 0 | | Specific\_Mains\_b. >180mm | 499,071 | 499,071 | 0 |   We have not yet estimated the impact of this error on the regression model, but we expect given the size of the change that it is likely to have only a small impact.  **2) Methodology for connection synthetic unit costs**  In reviewing the Capex\_Synthetic\_Unit\_Cost\_Model, we have noticed that the approach to estimating synthetic connections unit costs seems to vary slightly to the approach to repex, with rule 2 being run and applied three times before rule is applied. Could you explain the reason for this approach.  **3) Selection of preferred unit costs and application of scaling factors**  Without repeating the same queries that we have raised in Cadent\_FDQ\_20 (with regard to the repex synthetic unit cost model), we have noticed similar issues where it is not always clear why:   * A unit cost has been selected as the preferred unit cost, for example, in sheet Capex\_SUC\_selection the unit cost for Connections – Existing Mains >180mm is selected from after rule 2 although rule 3 should be applied as one company’s unit costs fails to meet the 40% threshold. * Why sometimes scaling factors are applied with reference to GD1 synthetic unit costs and in other cases with reference to the newly calculated unit costs.   In addition, we have also identified one instance where a preferred unit cost has been directly linked to a unit cost rather than applying the formulae logic – see row 103 in the sheet Capex\_SUC\_selection, where the combined unit cost “Connections New Existing NonDomestic Mains b.>180mm” is directly linked to the post rule 3 unit cost. Could you confirm whether this is an error, and if not provide an explanation behind the approach.  **4) Use of connection synthetic unit cost in GD2\_SyntheticCosts model**  Could you please explain why the reasoning behind the choice of the FPNES connections synthetic unit costs used in the GD2\_SyntheticCosts model.  The GD2\_SyntheticCost model uses the following synthetic unit costs against the following workload types.   |  |  | | --- | --- | | **Synthetic unit cost** | **Workload** | | New, Existing, Non-Domestic Mains ≤180mm | New Housing mains ≤180mm  Existing Housing Mains ≤180mm  Non-Domestic Mains ≤180mm | | New, Existing, Non-Domestic Mains >180mm | New Housing mains >180mm  Existing Housing Mains >180mm  Non-Domestic Mains >180mm | | New, Existing, Non-Domestic Services | New Housing mains services  Existing Housing Mains services  Non-Domestic Mains services | | New, Existing, FPNES ≤180mm | FPNES mains ≤180mm | | New, Existing, FPNES >180mm | FPNES mains >180mm | | New, Existing, FPNES Services | FPNES services |   As can be seen from the table above, while there is a combined unit cost for New, Existing and Non-Domestic connections that is applied to the relevant workload, the model also uses a combined unit cost for FPNES but only applies it to the FPNES workload. Could you explain the reason behind this approach, rather than using an FPNES only unit cost. | |
|  | | **Confidential** | No | |
|  | | **FDQ raised by** | Kate Haycock | |
|  | | **Date Sent** | 8 January 2021 | |
|  | | **Response Due Date** | 12 January 2021 | |
|  | | **Attachments:** | | |
|  | | **Response to Cadent:**  1. Thanks for pointing this error in picking up reinforcement costs from BPDTs. We will add the error to the issues log and correct for it in the final model update.  2. In assessing synthetic unit costs for connections, we tested different levels of aggregation, which resulted in the iterative application of rule 2. The model iterates rule 2 until all connections synthetic unit costs pass it.  3. The logic of the formulae in the synthetic unit costs selection sheet is:  - if the synthetic unit cost calculated after applying rule 2 passes rules 1-4, use that as the synthetic unit cost;  - if it doesn’t, but the synthetic unit cost calculated after applying Rule 3 does, then use that as the synthetic unit cost;  - if even that doesn’t pass some of the rules, then the model requires to input the synthetic unit cost manually. For the manual update, we either used scaling factors based on RIIO-GD1 synthetic unit costs or, where no obvious scaling factor could be identified, based on a set of synthetic unit costs that passed the rules.  4. Although only applied to FPNES mains and services, we derived FPNES synthetic unit costs based on the aggregation of new/existing housing and FPNES activities in order to get unit costs more robust from an engineering perspective. Overall, our approach to setting synthetic unit costs was based on a combination of both quantitative and qualitative selection criteria. | | |