Guidance

Cap and Floor Financial Model 1 Handbook (CFFM1H) Actual Cost of Debt (ACOD)	
Publication date:	21 July 2023
Contact:	Ubah Abraham and Lucy Bond
Team:	Interconnector Delivery
Telephone:	020 7901 7388
Email:	cap.floor@ofgem.gov.uk

The CFFM1H – ACOD is the handbook to the Cap and Floor Financial Model 1 (CFFM1) – Actual Cost of Debt (ACOD). This version of the handbook is for the NeuConnect Cap and Floor Financial Model 1 (NCCFFM1).

Contents

1. CFFM1 version control log

Handbook Version	Model Version	Prepared by	Reviewed By
20190320	2.1	Martin Namor, Senior Manager, Regulatory Finance	Svitlana Voronkova, Senior Analyst, ORE; Rahmatullah Kawsary, Analyst, ORE
20190902	2.2	Martin Namor, Senior Manager, Regulatory Finance	Svitlana Voronkova, Senior Analyst, ORE
20200707	2.2	Martin Namor, Senior Manager, Regulatory Finance	Riccardo Rosselli, Manager, Interconnectors
20201211 – ACOD	3.1	Martin Namor, Principal Financial Lead, Commercial, Regulatory Finance	Svitlana Voronkova, Senior Analyst, ORE
20210205 – ACOD	3.2	Martin Namor, Principal Financial Lead, Commercial, Regulatory Finance	Riccardo Rosselli, Manager, Interconnectors; Okon Enyenihi, Senior Manager, Interconnectors
20210514 – ACOD	3.3	Martin Namor, Principal Financial Lead, Commercial, Regulatory Finance	Svitlana Voronkova, Senior Analyst, ORE; Okon Enyenihi, Senior Manager, Interconnectors
20220808	3.4	Magdalena Rut, Regulatory Finance Analyst, Regulatory Finance	Dora Gencheva, Regulatory Finance Manager, Regulatory Finance
20230719	3.5	Ubah Abraham, Policy Manager, Lucy Bond, Policy Manager	Alexander Graham, Senior Manager

2. Purpose of the CFFM1H

Section summary

This section sets out the purpose of the CFFM1H and provides an overview of each section of this handbook and the appendices.

The purpose of the CFFM1H – ACOD is to provide an overview of the aim, structure and functioning of the CFFM1 – ACOD, the underlying building-blocks approach, the project finance related additions to the notional CFFM1, and the content of each worksheet within the model (in terms of its inputs, calculations and outputs).

We use the CFFM1 – ACOD to determine cap and floor levels underpinned by our Notional Cost of Debt (NCOD) approach, as well as the floor level underpinned by our Actual Cost of Debt (ACOD) approach.[1]

Project developers have the flexibility to choose between these two approaches depending on their chosen financing strategy. To be able to accommodate both approaches in one single model, we have made some changes to our default CFFM1 published with our Nemo Link PCR decision. This updated model is our CFFM1 - ACOD.

We oversee and approve the ACOD financial inputs achieved by the developers through a competitive and transparent debt financing process before we use these inputs in the ACOD – CFFM1. More details on this change and the requirements that apply under our ACOD approach is set out in our May 2020 regime variations decision.[2]

Section 3, "Introduction to the CFFM1 – ACOD", provides a high-level overview of the purpose of the CFFM1 – ACOD; it sets out at what stages in the lifetime of a cap and floor project the CFFM1 – ACOD is used, and at what stage its outputs are finalised and exported into the Cap and Floor Financial Model 2 (CFFM2) – ACOD.

Section 4, "Building blocks of the CFFM1 – ACOD", explains what the building blocks used in the CFFM1 – ACOD are and how they interact with each other to determine

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[1] The NCOD and the ACOD approaches correspond, respectively, to the Notional Floor Level (NFL) and Actual Floor Level (AFL) as specified in the special licence conditions.
[2] Regime variations decision (May 2020): https://www.ofgem.gov.uk/publications-and-updates/decision-proposed-changes-our-electricity-interconnector-cap-and-floor-regime-enable-project-finance-solutions

revenue cap and floor levels; this is also illustrated through the flowchart in Figure 1 for the cap level and notional floor level.

Section 5, "Relevant documents and inputs data to the CFFM1 – ACOD", provides a brief overview of the policy documents that are relevant to the CFFM1 – ACOD and of the type and source of input data that are used in the model.

Section 6, "High-level overview of the CFFM1 – ACOD worksheets", provides a brief overview of the content of each worksheet within the CFFM1 – ACOD:

1. Cover;

2. Version Control;

3. Inputs;

4. Data Sources;

5. Pre Op RAV;

6. Finance;

7. Op RAV;

8. Allowances Cap;

9. Allowances Floor;

10. Tax Deductions;

11. Tax Cap;

12. Tax Floor; and

13. Cap Floor Levels.

Appendix 1 provides a detailed overview of the purpose and structure of each worksheet within the CFFM1 – ACOD; of the inputs and calculations used within each worksheet; of the outputs produced by each worksheet; and of the interlinkages between different worksheets.

Appendix 2 is a technical appendix that provides a detailed explanation of the formula used to calculate interest during construction (IDC) as well as an example (from Nemo Link's PCR) of how the relevant inflation indices and exchange rate estimates are to be calculated.

Appendix 3 was developed by NeuConnect British Limited (NBL) to provide additional narrative around the changes to the default CFFM1 and associated handbook, most notably regarding the new debt facilities which we have added to the default CFFM1. This appendix explains the purpose of each of these facilities, as well as the associated costs structure.

Appendix 4 summarises which inputs are used to determine the NFL and AFL for a project, and at what stage these are updated.

3. Introduction to the CFFM1 - ACOD

Section summary

This section provides a high-level overview of the purpose of the CFFM1 – ACOD; it sets out at what stages in the lifetime of a cap and floor project the CFFM1 – ACOD is used, and at what stage its outputs are finalised and exported into the Cap and Floor Financial Model 2 (CFFM2) – ACOD.

The CFFM1 is a Microsoft Excel based financial model that is used to determine, for any project-financed electricity interconnector granted the cap and floor regime:

1. The preliminary cap level, notional floor level and actual floor level at the Final Project Assessment (FPA) stage; and

2. The final cap level, notional floor level and actual floor level, as well as resulting Post Construction Adjustment (PCA) to the preliminary cap and notional floor levels, and the adjustment to the actual floor level, at the Post Construction Review (PCR) stage.

These cap and floor levels are determined as real-term annuities aimed to limit the upward and downward exposure to merchant risk of the revenue earned by the interconnector developer during the 25-year operational period.

The cap level represents the maximum amount of annual revenue that the developer is allowed to retain; any revenue above this level must be transferred to consumers.

The notional floor level represents the minimum amount of annual revenue that the developer is guaranteed to earn (provided it meets a minimum availability threshold);[3] revenue below this level must be topped up by consumers.

The actual floor level represents the minimum amount of annual revenue that the developer can claim to service its debt; any difference between actual and notional floor level is paid to the developer on a temporary basis and needs to be returned to

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[3] The minimum availability threshold is set through a separate Interconnector Availability Calculator.

consumers in a net present value (NPV)-neutral way and in line with the requirements set out in a developer's licence.

During operations, the cap and floor levels are subject to inflation indexation, incentives, and potential adjustments to reflect changes to operating and decommissioning cost baselines; these are all outside the scope of the CFFM1 – ACOD, which is only used to set preliminary notional cap level, notional floor level and actual floor level at the FPA stage, and final notional cap level, notional floor level and actual floor level at the PCR stage.

The final cap and floor levels set at the PCR stage are the final output of the CFFM1 – ACOD and an input into the CFFM2 – ACOD, which is used during operational period to apply inflation indexation, incentives, and adjustments; and to determine the amount of any payments due from the developer to consumers or from consumers to the developer by comparing the revenue earned by the developer to the relevant cap and floor levels.

Key points:

➢ The CFFM1 – ACOD covers only the period up to the start date of the cap and floor regime (i.e. the pre-operational period); the period of 25 years from the start date of the regime onwards (i.e. the operational period) is covered in the CFFM2 – ACOD.

➢ The CFFM1 – ACOD is used twice: first following financial close to set preliminary cap and floor levels (both notional and actual) based mostly on construction cost estimates and initial economic and financial parameters determined at financial close; then at the PCR stage to set final cap and floor levels (both notional and actual) based mostly on actual construction costs and revised economic and financial assumptions.[4] Key financial parameters agreed with lenders as part of financial close are not revised at the PCR stage.

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[4] As explained in Appendix 1, the 'Cap Floor Levels' sheet within the CFFM1 has a section where the preliminary cap and floor levels (both notional and actual) calculated through the model need to be hardcoded at the end of the FPA stage, so that once the inputs to the model are updated at the PCR stage, the model determines the required Post Construction Adjustment (PCA) to the preliminary cap and notional floor levels as the difference between the final cap and notional floor levels calculated at PCR and the preliminary cap and notional floor levels previously calculated and hardcoded at FPA.

4. Building blocks of the CFFM1 – ACOD

Section summary

This section explains what the building blocks used in the CFFM1 – ACOD are and how they interact with each other to determine revenue cap and floor levels; this is also illustrated through the flowchart in Figure 1 for the cap level and notional floor level.

As explained in section 2, the CFFM1-ACOD is used to determine preliminary cap and floor levels at the FPA stage and final cap and floor levels at the PCR stage. These levels are calculated using a building-blocks approach.

There are four revenue building blocks to the overall cap and floor levels:

1. Operating expenditure (Opex) and Decommissioning costs (Decom);

2. Depreciation of the Regulatory Asset Value (RAV);

3. Return on the RAV; and

4. Tax.

The first two building blocks (Opex/Decom and depreciation) are common to the cap and the floor, while the other two (return and tax) have different values at the cap and the floor.

Opex is an estimate of the annual operating expenditure that will be incurred during the 25-year operational period; Decom an estimate of the costs that will need to be incurred to decommission the assets at the end of the operational period.

Depreciation is the annual run-off of the RAV built up during the pre-operational period as the sum of development expenditure (Devex), capital expenditure (Capex), cost of spares, capitalised interest during construction (IDC) and capitalised transaction costs; and during the operational period through the addition of replacement expenditure (Repex).

The return earned on the RAV depends on the rate of return applied:

- The allowed return at the cap is calculated by applying to the RAV a rate of return set to reflect the cost of equity; and

- The allowed return at the floor is calculated by applying to the RAV a rate of return set to reflect the cost of debt.

Once the first three building blocks have been calculated, they are aggregated to determine pre-tax cap and floor allowances. These are set in real terms and are then inflated to allow for tax calculations, which require nominal inputs.

Cap and floor tax allowances are then calculated in nominal terms relative to pre-tax cap and floor allowances respectively, and subsequently deflated back to real terms so that they can be added to the other three building blocks previously determined in real terms (Opex/Decom, RAV depreciation and RAV return).

The overall cap and floor levels are therefore determined as the sum of pre-tax cap and floor allowances and tax cap and floor allowances (all expressed in real terms).

The flow chart in Figure 1 illustrates this building blocks approach and the key calculations underpinning the cap and notional floor levels.

Figure 1: Building blocks of the CFFM1
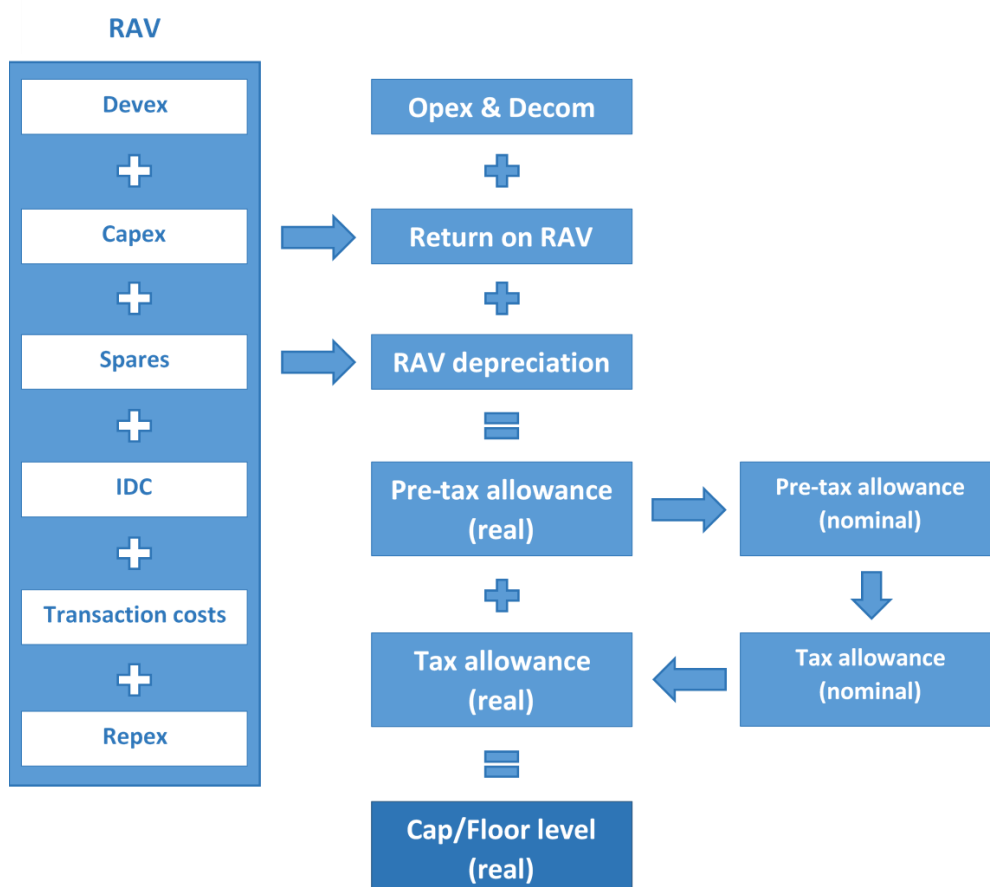
The actual floor level is calculated using the same building block approach but replacing two of the building blocks used to determine the notional floor level (RAV depreciation and return) with an alternative project-finance related building block: debt service (including buffer).

The pre-tax actual floor allowance is determined as the sum of Opex, Decom (both of which have the same value as in the notional floor), and debt service (including buffer). The tax building block is then calculated as a function of the pre-tax actual floor allowance and is therefore different from the tax building block used to determine the notional floor level.

The flow chart in Figure 2 illustrates the key calculations underpinning the actual floor level.

Figure 2. Building blocks of the CFFM1 – ACOD: actual floor level
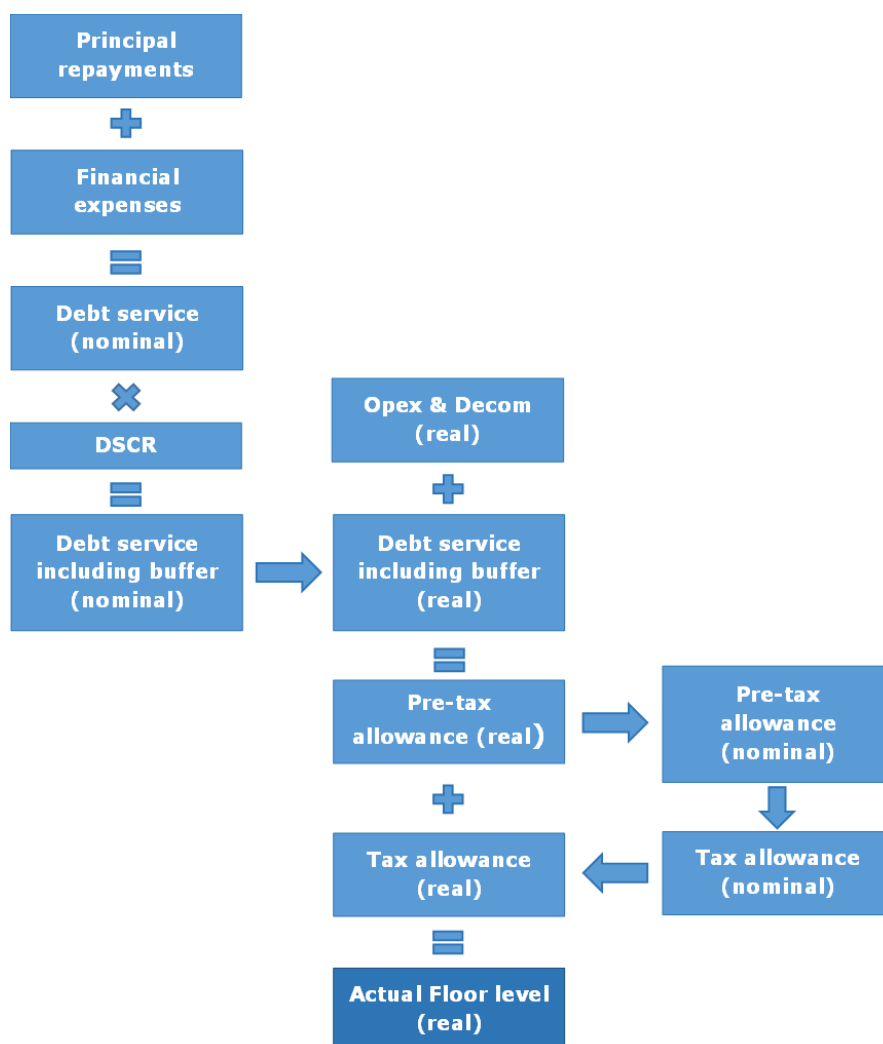
5. Relevant documents and data inputs to the CFFM1

Section summary

This section provides a brief overview of the policy documents that are relevant to the CFFM1 – ACOD and of the type and source of input data that are used in the model.

The CFFM1-ACOD is structured to comply with the licence conditions to which the developer granted the cap and floor regime is subject. Similarly, this handbook (CFFM1H-ACOD) is written to comply with the relevant licence conditions and, where stated, integrate these conditions where the licence does not prescribe a specific approach or calculation.

In addition to the project's licence, the CFFM1-ACOD and its handbook aim to reflect any relevant policy decision taken during the pre-operational phase of the project, at the:

- Initial Project Assessment (IPA) stage;

- Final Project Assessment (FPA) stage, and

- Post Construction Review (PCR) stage.

In addition, the CFFM1 – ACOD and its handbook aim to reflect policy decision in relation to the financing of projects through project finance.

Licence conditions, decision documents and other relevant documents (e.g. technical availability models) concur to determine the structure and functioning of the CFFM1 – ACOD, the content of this handbook and the value of some of the data inputs used within the model.

Overall, the CFFM1 – ACOD uses inputs from a variety of sources, including submissions from the developer and Ofgem's subsequent assessment of these submissions (e.g. in relation to capital and operating costs); determinations made by Ofgem in relation to the appropriate value of certain parameters (e.g. cost of capital); and a number of independent external data sources (e.g. inflation and exchange rate).

The inputs used throughout the model are populated in the 'Inputs' sheet; the sources of these inputs are listed in the 'Data Sources' sheet.

6. High-Level overview of the CFFM1-ACOD worksheets

Section summary

This section provides a brief overview of the content of each worksheet within the CFFM1-ACOD; for a detailed overview of the purpose and functioning of each sheet, please refer to Annex I.

The CFFM1 comprises 13 sheets:

Cover

The 'Cover' sheet includes a key to interpret the formatting used throughout the model, a brief description of the content of each sheet in the model and a summary of the checks performed throughout the model.

Version Control

The 'Version Control' sheet contains a log tracking all relevant versions of the CFFM1 and detailing the changes introduced within each version relative to the previous version.

Inputs

The 'Inputs' sheet contains all the inputs used throughout the model to calculate preliminary (at FPA) and final (at PCR) revenue cap, notional floor and actual floor allowances.

These include all project-finance related inputs.

All values exported from this sheet to the rest of the model are either inserted manually into the sheet or calculated in the sheet using manually inserted inputs.

Data Sources

The 'Data Sources' sheet details the sources of all the inputs in the 'Inputs' sheet and provides links to these sources.

Pre Op RAV

The 'Pre Op RAV' sheet contains the calculations used to build up the Regulatory Asset Value (RAV) during the pre-operational period and determine the final RAV amount at

the end of this period, which is then used as a starting point to calculate two of the building blocks of revenue cap and notional floor allowances: RAV depreciation and return on RAV.

In addition, the 'Pre Op RAV' sheet contains the calculations used to determine eligible costs, which in turn are used to calculate the project-finance related building block of the actual floor allowance, i.e. debt service (including buffer).

Finance

The 'Finance' sheet contains the calculations used to determine the amount of IDC and transaction costs (including IDC capitalised on transaction costs) that are capitalised into the RAV before the start of the operational period and contribute to determine revenue cap and notional floor allowances.

In addition, the 'Finance' sheet contains the calculations used to determine, in relation to the project-finance senior debt, the outstanding debt balance on an annual basis (as a function of either senior debt amount or gearing, and drawdown and repayment profiles), which in turn is used to determine financial expenses during construction and operations, and debt service as the sum of financial expenses and principal repayments. Debt service (including buffer) is the project-finance related building block of the actual floor allowance.

Op RAV

The 'Op RAV' sheet contains the calculations used to carry forward the RAV throughout the operational period and to calculate two of the building blocks of the revenue cap and notional floor allowances: RAV depreciation and return on RAV.

Allowances Cap

The 'Allowances Cap' sheet contains the calculations used to determine the annual cap allowances (excluding tax) through a building blocks approach, and then convert these annual revenue cap allowances into an annuity.

Allowances Floor

The 'Allowances Floor' sheet contains the calculations used to determine the annual notional and actual floor allowances (excluding tax) through a building blocks approach, and then convert these annual revenue floor allowances into annuities.

Tax Deductions

The 'Tax Deductions' sheet contains the calculations used to determine the annual amount of tax deductions during the 25-year operational period.

Tax deductions are calculated as the sum of revenue pool additions, capital allowances, interest payable (notional), and debt transaction costs for the revenue cap and notional floor allowances; and as the sum of revenue pool additions, capital allowances, and financial expenses during operations (actual) and debt transaction costs for the actual floor allowance.

Tax Cap

The 'Tax Cap' sheet contains the calculations used to determine the annual tax allowances at the cap to be added to the revenue cap allowances (excluding tax), and then convert these annual tax allowances into an annuity.

Tax Floor

The 'Tax Floor' sheet contains the calculations used to determine the annual tax allowances at the floor to be added to the notional and actual floor allowances (excluding tax), and then convert these annual tax allowances into annuities.

Cap Floor Levels

The annual cap, notional floor, and actual floor allowances (excluding tax) and the annual tax allowances at the cap and floor calculated, respectively, in the 'Allowances Cap/Floor' and 'Tax Cap/Floor' sheets are imported into the 'Cap Floor Levels' sheet and aggregated to determine the overall cap, notional floor and actual floor levels (including tax).

Appendices

Index

Appendix 1 – Detailed overview of the CFFM1-ACOD worksheets

The purpose of Appendix 1 is to provide a detailed overview of the purpose and structure of each worksheet within the CFFM1-ACOD; of the inputs and calculations used within each worksheet; of the outputs produced by each worksheet; and of the interlinkages between different worksheets.

The CFFM1-ACOD comprises 13 sheets:

1. Cover;
2. Version Control;
3. Inputs;
4. Data Sources;
5. Pre Op RAV;
6. Finance;
7. Op RAV;
8. Allowances Cap;
9. Allowances Floor;
10. Tax Deductions;
11. Tax Cap;
12. Tax floor; and
13. Cap Floor Level.

1. Cover

The 'Cover' sheet contains three sections:

- **Model key**: a key to interpret the font and fill colours used throughout the model;
- **Contents**: a brief description of the content of each sheet in the model (with hyperlink to the sheets to aid navigation), with colour coding used to group the

sheets depending on whether they contain inputs (yellow sheets), calculations (purple sheets) or final outputs of the model (green sheet); and

- **Checks**: a summary of the checks performed throughout the model.

2. Version Control

The 'Version Control' sheet contains a log listing, for each relevant version of the CFFM1:

1. Version number, with any major changes to the model being identified through an increase in integer (e.g. from 1.0 to 2.0) and minor change through an increase in decimal (e.g. from 1.0 to 1.1);

2. File pathname;

3. Previous version of the model on which the relevant version is based;

4. Name of the model author or editor responsible for implementing the changes in the relevant version;

5. Date on which the relevant version is finalised;

6. High-level description of the changes implemented;

7. Rationale for implementing the changes;

8. Location of the changes within the model;

9. Impact of the changes on the outputs of the model (if any);

10. Indication of whether quality assurance (QA) was performed and by whom; and

11. Any relevant comments relating to QA.

3. Inputs

The 'Inputs' sheet contains all the inputs used throughout the model to calculate preliminary (at FPA stage) and final (at PCR stage) Cap and Floor levels.

All values exported from this sheet to the rest of the model are either inserted manually in the sheet or calculated in the sheet using manually inserted inputs.

Section **Indexation, currency and base year price return** requires three values to be input:

- GB indexed portion of the interconnector (cell I6): this is generally equal to 100% if UK currency and inflation are applied to the entire project (e.g. for NSL), or 50% if UK currency and inflation are applied to half of the project, with foreign currency and inflation applied to the other half (e.g. for Nemo Link: half UK and half Belgium); the cell below, 'Non-GB indexed portion of the interconnector' (cell I7), is populated automatically through a formula based on the input in cell I6;

- Currency of cost inputs (cell I9): this requires a selection between GBP (£) and EUR (€), depending on whether the cost inputs in the section below are submitted in Pound Sterling (e.g. for NSL) or Euro (e.g. for Nemo Link); and

- Base year price term (cell I11): this indicates the base year in which the cap and floor values are expressed and therefore the base year to which the cost inputs need to be converted before being exported into the calculation sheets, as the model sets Cap and Floor levels in real terms and in a predetermined base year (e.g. £m 13/14 prices for Nemo Link).

Section **Variables set after financial close**[5] contains two sub-sections: 'Actual values' and 'Ex-ante allowances for the operational period'.

In sub-section **Actual values**, costs during construction (Development costs, Capex and Spares) are input in rows 20-22 for each relevant calendar year in nominal terms and in the currency indicated in cell I11.

Row 24 and 28 are populated, respectively, with the relevant UK inflation index in the base year (in column I, 'Constant') and the average value of the same index in each calendar year covered by the model, from row K onwards.[6,7]

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[5] Financial close is also referred to as Final Investment Decision (FID)
[6] Appendix II – Technical Appendix details the approach adopted to estimate the average value of the UK inflation index (row 28), foreign inflation index (row 29) and exchange rate (row 30) in those years for which actual data were not yet available to calculate the historical average. The same approach will be applied to any future cap and floor project (the only difference being that, for single currency projects, foreign inflation index and exchange rate estimates will not be required).
[7] The UK inflation forecast used to estimate inflation indices in future years starting from financial close will be derived from the inflation hedge acquired by the licence (should the licence decide to enter into an inflation hedge).

Rows 25 and 29 are populated in a similar way with values relating to the relevant foreign inflation index (only if the project is not fully GB-indexed; otherwise, the rows are to be left empty).

Rows 26 and 30 are populated in a similar way with values relating to the relevant exchange rate (only if the project is not fully GB-indexed; otherwise, the rows are to be left empty).

In row 32, an indexation factor is calculated in compliance with the licence (formula referred to as PPPIt in projects with a dual nature such as Nemo Link, or CRPI$_t$ in fully GB-indexed projects such as NSL) for each year covered by the model. The formula contains an IF statement that applies different calculations depending on whether the project has a dual nature or not.

In rows 34-36, the nominal costs input in rows 20-22 are converted from nominal to real terms, and from one currency to another, also reflecting the purchasing power parity principle (if the project has a dual nature).

In sub-section **Ex-ante allowances for the operational period**, costs during operations (Replacement Capex, Decommissioning baseline, Controllable Opex and Non-controllable Opex baseline) are input in real terms (with reference to a base year which is generally different from the base year required to set Cap and Floor levels as indicated in row 11) in rows 42-45 for the 25 operational years (please note these are referred to generically as year 1 to year 25, as the exact date on which operations will start might be unknown or subject to change at the time when the CFFM1 is used).

Rows 47-49 equal rows 24-26 previously described.

Rows 51-53 are populated in a similar way but with reference to the base year in which costs during operations are input, rather than the base year required to set cap and floor levels.

Row 55 is populated with the relevant exchange rate[8] (only if the project is not fully GB-indexed; otherwise, the rows are to be left empty).

In row 57, an indexation factor is calculated to convert real terms costs during construction from one base year to another. The formula contains an IF statement that applies different calculations depending on whether the project has a dual nature or not.

In rows 59-62, the real terms costs input in rows 42-45 are converted from one base year to another, and possibly from one currency to another, also reflecting the purchasing power parity principle (if the project has a dual nature).

Section **Variables set at financial close[9]** contains six sub-sections: 'Finance', 'Actual cost of debt', 'Model operation', 'Tax – Financial years', 'Tax – Operational years', and 'Tax – Annuity'.

In sub-section **Finance**, the allowed cap return rate, notional floor return rate and interest during construction (IDC) rate are input into cells I68-70. The cost of debt for tax purposes in cell I71 equals the floor return rate in cell I69.

Pre-operational and operational notional gearing are input in cells I73-74.

Equity and debt transaction cost allowances are input in cells I76-77 as percentages to be applied to the Regulatory Asset Value (RAV) transferred from the pre-operational phase into the operational phase.

In subsection **Actual cost of debt**, the developer's Project Financial Model (PFM) is used to select inputs as placeholder numbers to the regulatory model, which will subsequently set the Preliminary Actual Floor Level to match the ACOD floor in the PFM which is a value of £83.95 million in 2020/21 prices.

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[8] Appendix 2 – Technical Appendix details the approach adopted to estimate the average value of the exchange rate (row 55) for those years for which actual data are not yet available to calculate the historical average. The same approach will be applied to any future cap and floor project (the only difference being that, for single currency projects, foreign inflation index and exchange rate estimates will not be required).

Cell I81 allows a choice in relation to the key project-finance input to be included in the modelling: senior debt amount (option 1) or actual gearing (option 2); if 1 is selected, cell I82 is to be populated with the notional senior debt amount and cell I83 left empty; if 2 is selected, cell I82 is to be left empty and cell I83 populated with the actual gearing level of the project. The input of senior debt amount (option 1) or actual gearing (option 2) will deliver an actual floor in the CFFM1 – ACOD matching the floor calculated in the Project Finance Model (PFM) developed by the licensee and its financial advisor for the benefit of the Project Finance lenders.

Senior debt tenor and tail requirement (in years) are input in cells I85-86; Debt Service Coverage Ratio (DSCR) sizing in cell I87.

Fixed interest rates during construction and operations are input in cells I89-90.

Senior debt construction margin (with separate indication of the swap margin), upfront fee and commitment fee are input in dell I92-95.

Senior debt drawdown years and profile are input in rows 97-98.

Debt Service Reserve Facility/Account (DSRF/DSRA) amount, upfront fee, construction margin and commitment fee are input in cells I100-103.

Cap and Floor Liquidity Facility amount, average outstanding loan, upfront fee, construction margin and commitment fee are input in cells I105-109.

Standby Debt Facility amount, upfront fee, construction margin and commitment fee are input in cells I111-114.

VAT Facility amount, average outstanding loan, upfront fee, construction margin and commitment fee are input in cells I116-120.

Other facilities' amount, upfront fee, construction margin and commitment fee are input in cells I122-125.

Cells I127 allows a choice between DSRF and DSRA; cell I128 a choice between notional and actual transaction costs for the purpose of tax calculation.

Senior debt repayment years and profile are input in rows 133-134.

Operation margins for senior debt (including swap margin), DSRF, Cap and Floor Liquidity Facility, Standby Debt Facility, VAT Facility and other facilities are input in rows 136-141.

In sub-section **Model operation**, a number of key dates are input in cells I148-151 and calculated in cells I152-154.

The number of operational years is input in cell 155.

The test in cell I157 checks whether the debt tenor input in cell I85 is shorter than or equal to the period between start of operation in cell I151 and regime end date in cell I152, or whether it is longer than this period; this check is for information purposes only and does not indicate and error or problem with the inputs.

In row 159, the number of days in each financial year is calculated.

Rows 160-172 contain a number of key flags and counters, determined through formulas applied to the dates and other inputs in the sheet and used throughout the model; the flags and counters in rows 168-172 are project-finance related.

In sub-section **Tax – Financial years**, annual inflation uplifts are calculated in row 183 relative to the base year in row 180 to allow for tax calculations to be undertaken in nominal terms in the 'Deductions' sheet.

These uplifts are calculated by dividing the annual relevant inflation index in row 182 (equalling the inflation index calculated in row 28) by the inflation index in the base year (cell I180).

In sub-section **Tax – Operational years**, annual corporation tax rates and capital allowance rates (to be applied using a declining balance approach) are input in rows 189-190.

In addition, an inflation uplift between the base year and the start date of the regime is calculated in cell I195 using start and end dates of the base year (cells I193-194) and long-term expected inflation rate (cell I192).

Both the uplift and long-term expected inflation rate are fed through to the 'Deductions' sheet to allow for tax calculations to be undertaken in nominal terms.

In sub-section **Tax – Annuity**, cell I199 contains a switch to select whether the tax elements of the cap and floor levels were calculated and fixed at a previous stage (FPA) and are not to be updated at the relevant subsequent stage (PCR) at which the model is being re-run (e.g. for Nemo Link, these elements were calculated and fixed at FPA stage and not to be updated at PCR stage), or whether they are to be updated when the model is being re-run (e.g. for NSL, these elements were calculated at FPA and to be updated at PCR stage). In the first instance, "Yes" should be selected; in the second, "No" should be selected.

4. Data Sources

The 'Data Sources' sheet details the sources to all the inputs in the 'Inputs' sheet (yellow or red cells) and, where relevant, provides hyperlinks to these sources.

The structure of the sheet is the same as the structure of the 'Inputs' sheet, with the same sections and sub-sections, but a reduced number of rows, as only the rows of the 'Inputs' sheet in which values are input directly (rather than being calculated or imported from other rows) are covered in the 'Data Sources' sheet.

For each parameter in the 'Data Sources' sheet, column I shows the relevant row in which the parameter is input in the 'Inputs' sheet; column K is to be populated with a text string describing the source of the data; and column L with a hyperlink to the source of the data (if the data was sourced from an online source).

5. Pre Op RAV

The 'Pre Op RAV' sheet contains the calculations used to build up the Regulatory Asset Value (RAV) during the construction period and determine the final amount which is then used as a starting point to calculate two of the building blocks of the revenue cap and notional floor: RAV depreciation and return on RAV.

In addition, the 'Pre Op RAV' sheet contains the calculations used to determine eligible costs, which in turn are used to calculate the project-finance related building block of the actual floor allowance, i.e. debt service (including buffer).

Section **Flags** contains six flags imported from the 'Inputs' sheet:

1. The 'IDC flag' in row 8 equals 1 when IDC is earned in the entire year (construction year); is between 0 and 1 when IDC is earned for part of the year (i.e. because construction finishes during that year); and equals 0 when no IDC is earned (operational year).

2. The 'Post-IDC and pre-operations flag' in row 9 identifies whether there is a gap between the time when construction finishes (and therefore the project stops earning IDC) and the time when operations start.

3. The 'Operations flag' in row 10 equals 0 during construction years; is between 0 and 1 in a year during which construction finishes and operations start; and equals 1 during full operational years.

4. The 'Transfer construction to operations flag - Notional' in row 11 identifies the year in which the final value of the RAV built up during construction is transferred into the operational RAV to determine the depreciation allowance and return allowance that are included in the revenue cap and notional floor during operations.

5. The 'Transfer construction to operations flag – ACOD' in row 12 identifies the year in which eligible project-finance costs during construction are transfer to operations, i.e. the year in which the debt drawn down to finance these costs starts to be repaid.

6. The 'Financial close flag' in row 13 equals 1 in the year of financial close and 0 in all other years.

Section **RAV**, sub-section **Pre-operational**, contains the calculation used to build up the RAV during construction.

Row 19 contains the opening pre-operational RAV (before transfers) for the year, which is equal to zero in the first year and then equals the closing pre-operational RAV (after IDC and adjusted for RAV transfers) in the previous year.

In rows 20-22, costs during construction (Development costs, Capex and Spares) are imported from rows 34-36 of the 'Inputs' sheet.

In row 23, the capitalised interest during construction is imported from sheet 'Finance'.

In row 24, the closing operational RAV (after IDC but before any transfers) is calculated as the sum of the values in rows 19-23.

Row 25 determines whether a RAV transfer occurs between pre-operational and operational RAV, by multiplying the closing operational RAV in row 24 by the 'Transfer construction to operations flag - Notional' in row 11.

In row 26, the closing pre-operational RAV (after IDC and transfers) is calculated by deducting from the RAV in row 24 the transfers in row 25.

Section **Actual cost of debt** contains 3 subsections: 'Development costs', 'Pre-operational costs' and 'Eligible costs'.

In subsection **Development costs**, development costs are built up in rows 32-34 before being transferred to the eligible costs balance at financial close via row 35, using the flag in row 13. The calculations in this subsection are similar to those in the 'RAV' section, but use cost inputs in nominal terms rather than real terms.

In subsection **Pre-operational**, eligible costs are built up during construction in rows 40-45 as the sum of development cost transfers, Capex, cost of spares, DSRA funding and financial expenses during construction. The calculations in this subsection are similar to those in the 'RAV' section, but use cost inputs in nominal terms rather than real terms.

Subsection **Eligible costs** contains the workings required to break the circularity emerging from calculating financial expenses during construction, i.e. financial expenses being a function of eligible costs and eligible costs being a function of financial expenses (as financial expenses are capitalised into eligible costs).

Eligible costs in row 53 are calculated as the sum of the values in rows 41-45; these have to be copied and pasted as values into row 54 for as many times as is required for the circularity check in cell I57 to signal "OK" rather than to flag that further "Copy-Paste" is required.

6. Finance

Section **Flags** contains seven flags and two counters imported from the 'Inputs' sheet:

1. The 'Post-IDC and pre-operations flag', 'Operations flag', 'Transfer construction to operations flag - Notional', 'Transfer construction to operations – ACOD', and 'Financial close flag' are the same as those in the 'Pre Op RAV' sheet.

2. The 'Regime years' counter in row 10 indicates the years as well as the period count for any given year within the 25-year regime period.

3. The 'Initial transaction costs flag' in row 13 identifies the year in which notional transaction costs are calculated and start being rolled over, earning interest during construction (this is the year immediately before the year in which Capex starts to be incurred).

4. The 'Debt drawdown flag' in row 15 indicates the years in which senior debt is drown.

5. The 'Debt repayment years' counter in row 16 indicates the years as well as the period count for any given year in which debt repayment occurs.

Section **Pre-operational interest** during construction contains the calculations used to determine the amount of interest during construction (IDC) that is capitalised into the pre-operational RAV in the 'Pre Op RAV' sheet.

In cell I22, the interest during construction rate is imported from the 'Inputs' sheet.

In row 24, the opening pre-operational RAV (before transfers) is imported from row 19 of the 'Pre Op RAV' sheet.

In rows 25-27, costs during construction (Development costs, Capex and Spares) are imported from rows 34-36 of the 'Inputs' sheet.

Rows 28 calculates the interest during construction that is capitalised into the pre-operational RAV in the 'Pre Op RAV' sheet, based on the following formula:

$$IDC = ((1 + IDC\ rate)^{1-Flag1-Flag2} - 1) * \left(Opn\ PreOp\ RAV + \frac{Devex + Capex + Spares}{2 + IDC\ rate}\right)$$

Where:

*   IDC rate is from cell I22;

*   Flag1 is the post-IDC and pre-operations flag from row 9;

- Flag2 is the operations flag from row 10;

- Opn PreOp RAV is the opening pre-operational RAV (before transfers) from row 24; and

- Devex, Capex and Spares are the costs from rows 25-27.

The formula calculates IDC by applying the IDC rate to the NPV at the start of the year of the average RAV during the year, which in turn is calculated by adding to the opening RAV half of the costs incurred during the year, discounted from halfway through the year to the start of the year.

The two flags are used to ensure that no IDC is earned between the end of construction and the start of operations (Flag1) and during operations (Flag2).

Section **Transaction costs** contains two sub-sections: 'Parameters' and 'Allowance'.

Sub-section **Parameters** contains the relevant transaction costs parameters.

Pre-operational and operational notional gearing in cells I34-35 are imported from the 'Inputs' sheet.

Debt and equity transaction costs rates in cells I37-38 are also imported from the 'Inputs' sheet.

Sub-section **Allowance** contains the calculations used to determine the value of transaction costs (including capitalised IDC on transaction costs) that is added to the RAV at the start of operations.

The opening balance of transaction costs in row 42 equals the closing balance in the previous year (from row 50).

Initial debt transaction costs in row 43 are calculated by multiplying pre-operational RAV transfers to the operational RAV (from sheet 'Op RAV') by the pre-operational notional gearing in cell I34, by the debt transaction costs rate in cell I37, and by the 'initial transaction costs flag' in row 13.

Initial equity transaction costs in row 44 are calculated by multiplying pre-operational RAV transfers to the operational RAV (from sheet 'Op RAV') by one minus the pre-

operational notional gearing in cell I34, by the equity transaction costs rate in cell I38, and by the 'initial transaction costs flag' in row 13.

Final debt transaction costs in row 45 are calculated by multiplying the final pre-operational RAV transfers to the operational RAV (from sheet 'Op RAV') by the difference between operational notional gearing in cell I35 and pre-operational notional gearing in cell I34, by the debt transaction costs rate in cell I37, and by the 'transfer construction to operations flag - Notional' in row 11.

Final equity transaction costs in cell I46 are calculated by multiplying the final pre-operational RAV transfers to the operational RAV (from sheet 'Op RAV') by the difference between pre-operational notional gearing in cell I34 and operational notional gearing in cell I35, by the equity transaction costs rate in cell I38, and by the 'transfer construction to operations flag – Notional' in row 11.[10]

Transaction costs annual movements in row 47 are calculated as the sum of rows 43-46.

Capitalised IDC on transaction costs in row 48 is calculated using the same approach and formula as the IDC on construction costs calculated in row 28, but with initial/final debt/equity transaction costs as additions to the opening balance (instead of construction costs).

$$IDC = ((1 + IDC\ rate)^{1-Flag1-Flag2} - 1) * \left(Opening\ balance + \frac{Transaction\ costs}{2 + IDC\ rate}\right)$$

Transaction costs transfers to the operational RAV in row 49 are calculated as the sum of opening transaction costs balance from row 42, movement in transaction costs from row 47, and capitalised IDC on transaction costs from row 48, multiplied by the 'transfer construction to operations flag – Notional' in row 11.

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[10] Initial debt and equity transaction costs at the start of the construction period are calculated based on the initial notional gearing level – debt transaction costs based on gearing and equity transaction costs based on (one minus gearing). At the end of construction/start of the operational period, the notional gearing level increases, which means that more debt is issued while some of the equity is retired, so the formulas in cells E46-47 calculate the required adjustment to transaction costs to reflect the issue of additional debt and the repurchase of some of the equity.

The closing balance of transaction costs in row 50 is calculated as the sum of opening balance (row 42), annual movements (row 47), capitalised IDC (row 48) and transfers to operational RAV (row 49).

Section **Actual cost of debt** contains four subsections: 'Debt balance and reserves', 'Financial expenses during construction', 'Financial expenses during operation' and 'Debt service'.

Subsection **Debt balance and reserves** contains the calculations used to determine the opening and closing senior debt balance.

Eligible costs in row 56 are imported from the 'Pre Op RAV' sheet.

The senior debt amount in cell I58 is either imported from cell I82 in the 'Inputs' sheet or calculated as the product of eligible costs in row 56 and gearing in cell I59 (depending on the choice selected in cell I81 in the 'Inputs' sheet).

The actual gearing level in cell I59 is either imported from cell I83 in the 'Inputs' sheet or calculated as debt amount in cell I58 divided by eligible costs in row 56 (depending on the choice selected in cell I81 in the 'Inputs' sheet).

Senior debt drawdown and repayment profiles in rows 60 and 61 are imported from the 'Input' sheet.

Rows 63-66 calculate the opening and closing senior debt balance in each year (in rows 63 and 66 respectively) as a function of senior debt drawdowns and repayments in rows 64-65, which in turn are calculated as the product of the senior debt amount in cell I57 and, respectively, the drawdown and repayment profiles in rows 60-61.

In cells I68-74, the amounts of all ancillary facilities (DSRF, Cap and Floor Liquidity, Standby Debt, VAT, others), the average outstanding loan for the Cap and Floor Liquidity Facility, and the average outstanding loan for VAT Facility are imported from the 'Inputs' sheet.

Subsection **Financial expenses during construction** contains the calculations used to determine financial expenses during the construction period as the sum of interest payable, upfront fees and commitment fees for the senior debt and ancillary facilities.

In cells I78-83, upfront fees for senior debt and ancillary facilities are imported from the 'Inputs' sheet.

In cells I85-92, the fixed rate for the construction period and the construction margins for senior debt (with separate indication of the swap margin) and ancillary facilities are imported from the 'Inputs' sheet.

In rows 94-99, total interest rates on senior debt and ancillary facilities are calculated as the sum of the fixed rate in cell I85 and construction margins in cells I86-92.

In cells I101-106, commitment fees for senior debt and ancillary facilities are imported from the 'Inputs' sheet.

In rows 108-109, upfront fee payable on senior debt and ancillary facilities is calculated, in each year, as the product of debt/facility amount, upfront fee and financial close flag.

In row 110, interest payable on senior debt is calculated, in each year, multiplying the sum of opening debt balance and drawdowns in rows 63-64 by the total interest rate in row 94 by the debt drawdown flag in row 15.

In row 111, interest payable on ancillary facilities is calculated, in each year, multiplying the average outstanding loan for the VAT facility in cell I73 by the total interest rate in row 98 by the debt drawdown flag in row 15.

In row 112, commitment fee payable on senior debt is calculated, in each year, as the product of:

- Non-drawn portion of the debt (calculated as debt amount minus opening balance minus debt drawdowns); by

- Relevant margin (calculated as total interest rate minus fixed rate minus swap margin); by

- Commitment fee; by

- Debt drawdown flag.

In row 113, commitment fee payable on ancillary facilities is calculated, in each year and for each facility, as the product of facility non-drawn amount by construction margin by commitment fee by debt drawdown flag.

In row 114, financial expenses during construction are calculated as the sum of upfront fee payables (rows 108-109), interest payables (rows 110-111) and commitment fee payables (rows 112-113) for both senior debt and ancillary facilities.

Subsection **Financial expenses during operation** contains the calculations used to determine financial expenses during the operational period as the sum of interest payable on senior debt and commitment fees on ancillary facilities.[11]

In cell I118, the fixed rate for the operational period is imported from the 'Inputs' sheet.

In rows 119-123, the operation margins for senior debt (including swap margin) and ancillary facilities are imported from the 'Inputs' sheet and applied based on the debt repayment counter.

In rows 125-129, total interest rates on senior debt and ancillary facilities are calculated as the sum of the fixed rate in cell I118 and operation margins in rows 119-123.

In cells I131-135, commitment fees for senior debt and ancillary facilities are imported from the 'Inputs' sheet.

In row 137, interest payable on senior debt is calculated, in each year, as the product of total interest rate on senior debt by the sum of opening debt balance and debt drawdowns.

In row 138, interest payable on the Cap and Floor Liquidity Facility is calculated, in each year, as the product of total interest rate of this facility by the average outstanding loan in cell I70.

In row 139, commitment fee payable on ancillary facilities is calculated, in each year and for all facilities, as the product of facility non-drawn amount by operation margin by commitment fee.

In row 140, financial expenses during operations are calculated as the sum of interest payable on senior debt, interest payable on ancillary facilities and commitment fee payable on ancillary facilities.

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[11] This subsection does not include the VAT facility, which is used during the construction phase only. All other facilities apply during the operational period.

Subsection **Debt service** contains the calculations used to determine total debt service (including buffer).

In row 144, principal repayment is set equal to the negative of senior debt repayments in row 65; in row 145, financial expenses during operations are set equal to the values in row 140; total debt service in row 146 is then calculated as the sum of the two.

In cell I148, the sizing of the DSCR is imported from the 'Inputs' sheet.

In row 150, total debt service including buffer is calculated multiplying total debt service in row 146 by DSCR sizing in cell I148; then, in row 151, the values converted from nominal into real terms using the indexation factor in row 32 of the 'Inputs' sheet.

In row 155, the DSRA pre-funding is calculated multiplying the 'transfer construction to operations flag – ACOD' in row 12 by the DSRF/DSRA amount in cell I100 of the 'Inputs' sheet, but only if option 2 is selected in cell I127 of the 'Inputs' sheet (otherwise, the DSRA pre-funding is equal to zero).

7. Op RAV

The 'Op RAV' sheet contains the calculations used to update the RAV during the operational period and to calculate two of the building blocks of the revenue allowed during operations: RAV depreciation and return on RAV.

Section **RAV**, sub-section **Operational**, contains the calculations used to update the RAV during operations.

The opening operational RAV (before transfers) in row 9 is equal to the closing operational RAV in the previous year (row 15).

The transfers of transaction costs and pre-operational RAV in rows 10-11 are imported from sheets 'Finance' and 'Pre Op RAV' respectively.

Opening operational RAV (after transfers) in row 12 is the sum of rows 9-11.

Replacement Capex in row 13 is imported from the 'Inputs' sheet.

Depreciation in row 14 is the negative of row 25 'RAV depreciation' from sub-section 'Operational RAV depreciation'.

Closing operational RAV in row 15 is the sum of rows 12-14.

Average operational RAV in row 17 is the average of opening operational RAV (after transfers) from row 12 and closing operational RAV from row 15.

Section **Operational RAV depreciation** is used to calculate the annual depreciation which is deducted from the opening balance of the operational RAV in section 'RAV', and which is one of the building blocks of the operational revenue cap and floor.

The number of operation years in cell I21 is imported from the 'Inputs' sheet.

In row 22, a countdown to the end of operations is calculated by setting year 1 equal to the value in cell I21, and then deducting one in each subsequent year.

The flag in row 23 checks that the number of remaining years in row 22 is greater than zero and returns 'TRUE' where this is the case.

In row 25, an IF statement calculates annual depreciation where the flag is TRUE and return zero where it is FALSE. Annual depreciation is calculated according to a second IF statement: if the countdown in row 22 is equal to 1 (i.e. the last year of operations), then depreciation equals the full residual balance (calculated as opening balance plus replacement Capex in the year); in any other year, depreciation is calculated by dividing the sum of opening operational RAV (after transfers) in row 12 and replacement Capex in row 13 by the number of remaining year in the operational period from row 22.

The test in cell I27 checks that total depreciation over the operational period in row 25 equals the sum of total construction costs and capitalised IDC on these costs from rows 18-21 in the 'Pre Op RAV' sheet, total transaction costs and capitalised IDC on these costs from rows 44-47 and 49 in the 'Finance' sheet and total replacement Capex from row 13 in the 'Op RAV' sheet.[12]

Section **Operational RAV return** is used to calculate another one of the building blocks of the operational revenue cap and floor: the return on RAV.

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[12] The formula in cell I27 applies this test by checking that the absolute value of the difference is less than £0.01, rather than by testing for absolute equality, as this might return a 'FALSE' output due to Microsoft Excel applying rounding to numbers with repeating decimals, and the fact that some of the 12- month averages of inflation indices and exchange rate used to convert base year and currency of cost figures that are then added to the RAV might have repeating decimals.

Cap and floor return rates in cells I31-32 are imported from the 'Inputs' sheet.

Opening operational RAV (after transfers) and closing operation RAV in rows 34-35 are imported from the 'RAV – Operational' section of the sheet.

The NPV-neutral return base for the cap and floor in rows 37-38 is calculated by averaging the opening RAV from row 34 and the closing RAV from row 35, with the latest discounted using the discount rate in cells I31-32 (i.e. cap return rate for the cap return base and floor return rate for the floor return base).

In rows 40-41, allowed return at cap and floor are calculated by multiplying, respectively, the cap return rate in cell I31 by the NPV-neutral cap return base in row 37, and the floor return rate in cell I32 by the NPV-neutral floor return base in row 38.

8. Allowances Cap

The 'Allowances Cap' sheet contains the calculations used to determine the annual revenue allowances (excluding tax) at the cap through a building blocks approach, and then convert these revenue allowances into an annuity.

Section **Unprofiled allowances except tax (cap)** imports all relevant building blocks into rows 8-12 and then aggregates the values from these rows to determine the un-profiled (i.e. prior to annuitisation smoothing) cap allowances (except tax) in row 13; the relevant building blocks included in the cap allowances are:

- Controllable Opex in row 8, imported from the 'Inputs' sheet;
- Non-controllable Opex baseline in row 9, from the 'Inputs' sheet;
- Decommissioning baseline in row 10, from the 'Inputs' sheet;
- RAV depreciation in row 11, from the 'Op RAV' sheet; and
- RAV return at the cap in row 12, from the 'Op RAV' sheet.

Section **Profiled allowances except tax (cap)** contains to sub sections: 'Annuity parameters' and 'Allowances except tax'.

In sub-section **Annuity parameters**, the cap return rate and number of operational years are imported into cells I19-20 from the 'Inputs' sheet, and used to calculate the annuity factor for the cap in cell I21 through the following formula:

$$Annuity\ factor = \frac{CapRate}{1 - (1 + CapRate)^{-(no.\ of\ op\ years)}}$$

The flag in row 23 checks that the progressive year reference in row 4 is within the operational period (i.e. larger than zero and equal to or smaller than 25).

Row 24 calculates a discount factor to the start of operations, to be used in the following subsection to discount the un-profiled revenue allowances at the cap; this discount factor is calculated according to the following formula:

$$Discount\ factor = (1 + CapRate)^{-year}$$

In sub-section **Allowances except tax**, the un-profiled revenue allowances calculated in section 'Unprofiled revenue allowances except tax (cap)' are discounted, aggregated and reprofiled in the form of an annuity.

In row 28, discounted un-profiled allowances are calculated by multiplying the un-profiled allowances in row 13 by the discount factor in row 24.

The NPV of the un-profiled allowances is calculated in cell I29 as the sum of all discounted un-profiled allowances in row 28.

This NPV is then multiplied by the annuity factor in cell I31 (imported from cell I21) to determine the annual revenue cap allowance in the form of an annuity in cell I33.

In row 34, the annual revenue allowance (except tax) at the cap is set equal to the annuity calculated in cell I33.

9. Allowances Floor

The 'Allowances Floor' sheet contains the calculations used to determine the annual revenue allowances (excluding tax) at the floor through a building blocks approach, and then convert these revenue allowances into an annuity.

Section **Unprofiled allowances except tax (floor)** imports all relevant building blocks into rows 8-12 and then aggregates the values from these rows to determine the un-profiled (i.e. prior to annuitisation smoothing) floor allowances (except tax) in row 13; the relevant building blocks included in the floor allowances are:

- Controllable Opex in row 8, imported from the 'Inputs' sheet;

- Non-controllable Opex baseline in row 9, from the 'Inputs' sheet;

- Decommissioning baseline in row 10, from the 'Inputs' sheet;

- RAV depreciation in row 11, from the 'Op RAV' sheet; and

- RAV return at the floor in row 12, from the 'Op RAV' sheet.

Section **Profiled allowances except tax (floor)** contains to sub sections: 'Annuity parameters' and 'Allowances except tax'.

In sub-section **Annuity parameters**, the floor return rate and number of operational years are imported into cells I19-20 from the 'Inputs' sheet, and used to calculate the annuity factor for the floor in cell I21 through the following formula:

$$Annuity\ factor = \frac{FloorRate}{1 - (1 + FloorRate)^{-(no.\ of\ op\ years)}}$$

The flag in row 23 checks that the progressive year reference in row 4 is within the operational period (i.e. larger than zero and equal to or smaller than 25).

Row 24 calculates a discount factor to the start of operations, to be used in the following subsection to discount the un-profiled revenue allowances at the floor; this discount factor is calculated according to the following formula:

$$Discount\ factor = (1 + FloorRate)^{-year}$$

In sub-section **Allowances except tax**, the un-profiled revenue allowances calculated in section 'Unprofiled revenue allowances except tax (floor)' are discounted, aggregated and reprofiled in the form of an annuity.

In row 28, discounted un-profiled allowances are calculated by multiplying the un-profiled allowances in row 13 by the discount factor in row 24.

The NPV of the un-profiled allowances is calculated in cell I29 as the sum of all discounted un-profiled allowances in row 28.

This NPV is then multiplied by the annuity factor in cell I31 (imported from cell I21) to determine the annual revenue floor allowance in the form of an annuity in cell I33.

In row 34, the annual revenue allowance (except tax) at the floor is set equal to the annuity calculated in cell I33.

Section **Unprofiled allowances except tax (actual floor during debt tenor and tail period)** uses the same building-block approach and three of the same building blocks (controllable Opex, non-controllable Opex baseline and decommissioning baseline) as section 'Unprofiled allowances except tax (notional floor)', with the only difference being that total debt service including buffer in row 41 replaces the sum of RAV depreciation and return.

Section **Profiled allowances except tax (actual floor during debt tenor and tail period)** has three sub-sections: 'Annuity parameters during debt tenor', 'Allowances except tax during debt tenor' and 'Allowances except tax during tail period',

Sub-section **Annuity parameters during debt tenor** uses the same approach to calculate the annuity factor as section 'Profiled allowances except tax (notional floor)', but with the following differences:

- The discount rate in cell I52 is calculated as the weighted average (based on weights in row 50, calculated using financial expenses during operation from row 140 of the 'Finance' sheet) of the actual cost of debt rates in row 49, which in turn are determined by deflating the nominal rates imported into row 48 from the 'Finance' sheet using the long-term inflation assumption from cell I169 of the 'Inputs' sheet; and

- The annuity factor in cell I54 is calculated as a function of the discount rate in cell I52 and the debt tenor in cell I53 (rather than the number of operational years used to calculate the annuity factor for the notional floor).

Sub-sections **Allowances except tax during debt tenor** and **Allowances except tax during tail period** use the same annuitisation approach as section 'Allowances except tax' in section 'Profiled allowances except tax (notional floor)', with the difference that they allocate the resulting annuity only to the years within the debt tenor and tail period, and not to any subsequent years.

10. Tax Deductions

Section **Tax deductions** contains three sub-sections: 'Inflation', 'Total tax deductions – Nominal cost of debt', and 'Total tax deductions – Actual cost of debt'.

In sub-section **Inflation**, an RPI uplift scalar (from the base year to the start of the regime) and a long-term expected RPI inflation rate are imported into cells I10-11 from the 'Inputs' sheet.

In row 11, projected future values of the RPI inflation index are calculated by applying the long-term expected RPI inflation rate in cell I10 to the RPI uplift scalar (in year 1 of operations) and then to the value in the cell immediately to the left (from year 2 of operations onwards).

Inflation forecasts in row 12 are required because tax calculations must be performed in nominal terms, while the core of the CFFM operates in real terms.

In sub-section **Total tax deductions** – **Notional cost of debt**, the total annual amount of tax deductions during the 25 years of operations are calculated as the sum of the following four components:

- Revenue pool additions, from row 36 (section 'Tax pools', sub-section 'Revenue pool');

- Capital allowances, from row 53 (section 'Tax pools', sub-section 'Capital allowance pool');

- Principal repayment and interest payable, from row 68 and row 69 (section 'Interest', sub-section 'Net debt'); and

- Debt transaction costs, imported in real terms from the 'Finance' sheet and inflated using an inflation uplift from the 'Inputs' sheet.

In sub-section **Total tax deductions – Actual cost of debt**, the total annual amount of tax deductions during the debt tenor and tail period (as identified by the flag in row 24) are calculated as the sum of the following five components:

- Revenue pool additions, from row 38 of the Tax Deductions sheet;

- Capital allowances, from row 53 of the Tax Deductions sheet;

- Financial expenses during operation, from row 140 of the Finance sheet, based on the actual debt terms; and

- Debt transaction costs, linked to the switch in cell I128 of the 'Inputs' sheet, selects between actual debt transactions costs, calculated in rows 106 and 107 of the Finance sheet, and notional debt transaction costs, calculated in row 19 of the 'Tax Deductions' sheet.

Section Tax pools contains two sub-sections: 'Revenue pool' and 'Capital allowance pool'.

In sub-section **Revenue pool**, the revenue pool additions are calculated as the sum of controllable Opex and non-controllable Opex baseline, which are imported in real terms from the 'Inputs' sheet and inflated using the forecast inflation uplift in row 12.

In sub-section **Capital allowance pool**, the annual capital allowance rates in row 42 and the number of operational years in cell I43 are imported from the 'Inputs' sheet.

In row 45, the opening asset balance brought forward is set equal to the closing balance in the previous year, in row 51.

Capex in cell K46 is imported in real terms from the 'Pre Op RAV' sheet and inflated using an inflation uplift from the 'Inputs' sheet.

Replacement Capex in row 47 is imported in real terms from the 'Op RAV' sheet and inflated using the forecast inflation uplift in row 12.

The tax book value pre-depreciation in row 48 is the sum of rows 45-47.

The capital allowances in row 49 are calculated by multiplying the tax book value pre-depreciation in row 48 by the capital allowance rate in row 42, based on a 'declining balance' approach.

The write-back allowance in cell AI50 (year 25 of operations) is calculated as the negative of the residual asset balance after capital allowances in the year, so that the resulting closing balance in year 25 is equal to zero.

In row 51, the closing balance carried forward is the sum of rows 48-50.

Capital allowances in row 53, which are exported to section 'Tax deductions', sub-section 'Total tax deductions', are calculated as the negative of the sum of capital allowances

and write-back allowance in rows 49-50 (as these two lines are populated with negative values, while the figures need to be exported as positive values).

Section **Interest – Notional cost of debt** contains two sub-sections: 'Cost of debt' and 'Net debt'.

In sub-section **Cost of debt**, real terms cost of debt and expected RPI inflation rate are imported into cells I59-60 from the 'Inputs' sheet, and used to calculate nominal cost of debt in cell I61 through the Fisher formula:

$$NominalRate = (1 + RealRate) * (1 + InflationRate) - 1$$

In sub-section **Net debt**, the number of operational years and the operational notional gearing are imported into cells I65-66 from the 'Inputs' sheet.

The principal repayment in row 68 is calculated by subtracting the net interest paid in row 69 from the total debt payment in row 70.

The net interest paid in row 69, which is then exported into section 'Tax deductions', sub-section 'Total tax deductions', is calculated by multiplying the opening net debt balance in row 72 by the nominal cost of debt rate in cell I61.

The total annual debt payment in row 70 is calculate as a fixed annuity according to the following formula:

$$DebtPayment = OpeningDebtYear1 * \frac{CostOfDebt}{1 - (1 + CostOfDebt)^{-no.\ of\ op\ years}}$$

The opening net debt balance in row 72 is calculated, in Year 1, by multiplying the opening pre-operational RAV (in real terms) imported from sheet 'Op RAV' by the notional gearing in cell I66 and inflation uplift in cell I10; in all subsequent years, it is set equal to the closing net debt balance from the previous year (row 74).

The principal repayment in row 73 is set equal to the negative of principal repayment in row 68 in years 1-24, and equal to the negative of the opening net debt balance in row 72 in year 25 (using an IF statement).

The closing net debt balance in row 74 is the sum of rows 72-73.

Debt payment calculations are set up in the way described above to avoid circularities.

11. Tax Cap

The 'Tax Cap' sheet contains the calculations used to determine the annual tax allowances at the cap to be added to the revenue cap allowances (excluding tax), and then convert these annual tax allowances into an annuity.

Section **Unprofiled tax allowance (cap)** has three sub-sections: 'Profits attributable to corporation tax', 'Tax losses', and 'Tax allowance'.

In sub-section **Profits attributable to corporation tax**, annual tax deductions (row 10) are imported from the 'Tax Deductions' sheet and deducted from the revenue allowances at the cap (row 9), which are imported from the 'Allowances Cap' sheet and inflated using the inflation uplift in row 11 of the 'Tax Deductions' sheet, to determine the annual level of profit attributable to corporation tax (row 11).

Sub-section **Tax losses** is used to calculate the balance of losses that are carried forward into subsequent years and netted off the profits attributable to corporation tax.

In row 15, the opening balance of taxable losses brought forward is set equal to the closing balance of taxable losses in the previous year (row 18).

In row 16, in-year taxable losses are set equal to profits attributable to corporation tax in row 11 if these are negative, or equal to zero if these are positive (using a MIN function).

In row 17, profits used to offset losses are set equal to zero if profits attributable to corporation tax (row 11) are negative or, if these are positive, equal to the smaller of profits attributable to corporation tax and the negative of the opening balance of taxable losses brought forward in row 15 (using an IF statement and a MIN function).

In row 18, taxable losses carried forward into the next year are calculated as the sum of rows 15-17.

Sub-section **Tax allowance** is used to calculate the un-profiled tax allowances at the cap (row 28).

In row 22, profits attributable to corporation tax (after taxable losses) are set equal to the difference between profits attributable to corporation tax in row 11 and profits used

to offset tax losses in row 17 if this difference is positive, or equal to zero if this difference is negative (using a MAX function).

In row 23, the corporation tax rate is imported from the 'Inputs' sheet.

In row 24, corporation tax charges after losses are calculated by multiplying profits after losses from row 22 by the corporation tax rate in row 23.

The tax grossing-up factor in row 26 is calculated using the corporation tax rate in row 23 and the following formula:

$$Grossing-up\ factor = \frac{1}{1 - Corporation\ tax\ rate}$$

In section **Profiled tax allowance (cap),** the annual un-profiled tax allowances calculated in section 'Unprofiled tax allowances (cap)' are deflated, discounted, aggregated and re-profiled in the form of an annuity.

In row 32, nominal tax allowances are deflated to real term equivalents using the inflation uplift in row 11 of the 'Tax Deductions' sheet.

In row 35, discounted un-profiled allowances are calculated by multiplying the deflated unprofiled allowances from row 32 by the discount factor in row 33, which is imported from the 'Allowances Cap' sheet.

The NPV of the un-profiled allowances is calculated in cell I36 as the sum of all discounted un-profiled allowances in row 35.

This NPV is then multiplied by the annuity factor in cell I38 (imported from the 'Allowances Cap' sheet) to determine the annual tax allowance at the cap in the form of an annuity in cell I40.

12. Tax Floor

The 'Tax Floor' sheet contains the calculations used to determine the annual tax allowances at the floor to be added to the revenue floor allowances (excluding tax), and then convert these annual tax allowances into an annuity.

Section **Unprofiled tax allowance (floor)** has three sub-sections: 'Profits attributable to corporation tax', 'Tax losses', and 'Tax allowance'.

In sub-section **Profits attributable to corporation tax**, annual tax deductions (row 10) are imported from the 'Tax Deductions' sheet and deducted from the revenue allowances at the floor (row 9), which are imported from the 'Allowances Floor' sheet and inflated using the inflation uplift in row 11 of the 'Tax Deductions' sheet, to determine the annual level of profit attributable to corporation tax (row 11).

Sub-section **Tax losses** is used to calculate the balance of losses that are carried forward into subsequent years and netted off the profits attributable to corporation tax.

In row 15, the opening balance of taxable losses brought forward is set equal to the closing balance of taxable losses in the previous year (row 18).

In row 16, in-year taxable losses are set equal to profits attributable to corporation tax in row 11 if these are negative, or equal to zero if these are positive (using a MIN function).

In row 17, profits used to offset losses are set equal to zero if profits attributable to corporation tax (row 11) are negative or, if these are positive, equal to the smaller of profits attributable to corporation tax and the negative of the opening balance of taxable losses brought forward in row 15 (using an IF statement and a MIN function).

In row 18, taxable losses carried forward into the next year are calculated as the sum of rows it'15-17.

Sub-section **Tax allowance** is used to calculate the un-profiled tax allowances at the floor (row 28).

In row 22, profits attributable to corporation tax (after taxable losses) are set equal to the difference between profits attributable to corporation tax in row 11 and profits used to offset tax losses in row 17 if this difference is positive, or equal to zero if this difference is negative (using a MAX function).

In row 23, the corporation tax rate is imported from the 'Inputs' sheet.

In row 24, corporation tax charges after losses are calculated by multiplying profits after losses from row 22 by the corporation tax rate in row 23.

The tax grossing-up factor in row 26 is calculated using the corporation tax rate in row 23 and the following formula:

$$Grossing-up\ factor = \frac{1}{1 - Corporation\ tax\ rate}$$

In section **Profiled tax allowance (notional floor)**, the annual un-profiled tax allowances calculated in section 'Unprofiled tax allowances (floor)' are deflated, discounted, aggregated and reprofiled in the form of an annuity.

In row 32, nominal tax allowances are deflated to real term equivalents using the inflation uplift in row 11 of the 'Tax Deductions' sheet.

In row 35, discounted un-profiled allowances are calculated by multiplying the deflated unprofiled allowances from row 32 by the discount factor in row 33, which is imported from the 'Allowances Floor' sheet.

The NPV of the un-profiled allowances is calculated in cell I36 as the sum of all discounted un-profiled allowances in row 35.

This NPV is then multiplied by the annuity factor in cell I38 (imported from the 'Allowances Floor' sheet) to determine the annual tax allowance at the floor in the form of an annuity in cell I40.

Section **Unprofiled tax allowance (actual floor)** has the same three sub-sections ('Profits attributable to corporation tax', 'Tax losses', and 'Tax allowance') and uses the same approach and calculations as section 'Unprofiled tax allowance (notional floor)'.

Similarly, section **Profiled tax allowance (actual floor)** uses the same approach and calculations as section 'Profiled tax allowance (notional floor)'.

The only difference between how the tax allowances for the notional and actual floor are calculated is in relation to the following input values:

- Annuitized allowances except tax (floor) and tax deductions in rows 9-10 for the notional floor and 46-47 for the actual floor;

- Discount factor to start of operational period (floor) in rows 33 for the notional floor and 70 for the actual floor; and

- Annuity factor (floor) is cell I38 for the notional floor and cell I75 for the actual floor.

13. Cap Floor Levels

The annual cap and floor allowances (excluding tax) and the annual tax allowances at the cap and the floor calculated throughout the model are imported into the 'Cap Floor Level' sheet and aggregated to determine the overall cap and floor levels (including tax).

At Post Construction Review (PCR) stage, these allowances are finalised and compared against preliminary allowances set at the Final Project Assessment (FPA) stage to determine the required Post Construction Adjustment (PCA) to the preliminary cap and floor levels.

Section **Cap and floor levels and adjustments** has two sub-sections:

- 'Cap and notional floor levels at FPA (Preliminary) / PCR (Final) and PCA adjustments at PCR'; and

- 'Actual floor level at FPA (Preliminary) / PCR (Final)'.

In sub-section **Cap and notional floor levels at FPA (Preliminary) / PCR (Final) and PCA adjustments at PCR**, cells I8 and I9 display, respectively, the annual cap and notional floor allowances (excluding tax) calculated through the model and imported from the 'Allowances Cap' and 'Allowances Floor' sheets.

Cells I11 and I12 display the annual tax allowances at the cap and the notional floor calculated through the model and imported from the 'Tax Cap' and 'Tax Floor' sheets.

At the PCR stage, cap and floor allowances (excluding tax) are updated for all projects; however, tax allowances might be fixed at FPA stage and not updated at PCR stage. When this is the case, when the model is run at PCR stage, the fixed tax allowances previously set at FPA stage need to be input in cells I14 and I15.

Cells I17 displays the total annual cap allowance including tax, which is calculated as the sum of I8 and I11 at FPA stage, and at PCR stage when the tax allowance was not fixed at FPA stage; or as the sum of I8 and I14 at PCR stage when the tax allowance was fixed at FPA stage (using an IF statement based on whether cell I199 in the 'Inputs' sheet – 'Tax element of Cap and Floor annuity previously calculated and fixed' – is populated as, respectively, No or Yes).

Cells I18 displays the total annual notional floor allowance including tax, which is calculated as the sum of I9 and I12 at FPA stage, and at PCR stage when the tax allowance was not fixed at FPA stage; or as the sum of I9 and I15 at PCR stage when the tax allowance was fixed at FPA stage (using an IF statement based on whether cell I199 in the 'Inputs' sheet – 'Tax element of Cap and Floor annuity previously calculated and fixed' – is populated as, respectively, No or Yes).

When the model is run at PCR stage, total annual cap and notional floor allowances including tax previously set at FPA stage need to be input in rows 20 and 21.

At PCR stage, rows I23 and I24 display the required post construction adjustments (PCA) to the cap and the notional floor, which are calculated, respectively, as the difference between cells I17 and I20 (cap) and between I18 and I21 (notional floor).

Sub-section **Actual floor level at FPA (Preliminary) / PCR (Final)** replicates sub-section 'Cap and notional floor levels at FPA (Preliminary) / PCR (Final) and PCA adjustments at PCR', but in relation to the actual floor level during debt tenor and tail period.

Appendix 2 – Technical appendix

Capitalised IDC

This appendix provides a detailed breakdown and explanation of the formula that is used to calculate the interest during construction (IDC) that is capitalised into the regulatory asset value (RAV), building on the explanation already provided in Appendix 1, section 'f. Finance'.

$$IDC = ((1 + IDC\ rate)^{IDC\ flag} - 1) * \left(Opn\ PreOp\ RAV + \frac{Devex + Capex + Spares}{2 + IDC\ rate} \right)$$

Where:

1. IDC rate is from cell I18;

2. Flag1 is the post-IDC and pre-operations flag from row 9;

3. Flag2 is the operations flag from row 10;

4. Op PreOpx RAV is the opening pre-operational RAV (before transfers) from row 20; and

5. Opn PreOp RAV is the opening pre-operational RAV (before transfers) from row 20; and

6. Devex, Capex and Spares are the costs from rows 21-23.[13]

The IDC formula used in the CFFM1 assumes that capital additions (Devex, Capex and cost of spares) are incurred (and added to the RAV) uniformly throughout the year and, therefore, half of the annual additions are added by the mid-point of the year (e.g. in this case, by the end of June). The intent is for the IDC formula to approximate the timing of when Devex, Capex and cost of spares are actually incurred.

To determine the IDC value to be capitalised into the RAV in each year, the IDC rate is applied to the estimated value at the start of the year of the RAV half-way through the year. This value is calculated by adding to the opening RAV at the start of the year half

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[13] All the cell and row references in these bullet points refer to the 'Finance' sheet

of the capital additions added throughout the year (based on the assumption that these are added uniformly and, therefore, halfway through the year half of the annual additions have been added, as explained above). These additions are discounted to bring their value back to the start of the year.

Since only half of the annual additions are added to the opening RAV, these are discounted back from halfway through the year to the start of the year using half the IDC rate as the discount rate. So, ultimately, the IDC formula applies the IDC rate to the sum of opening RAV at the start of the year and half additions discounted from the mid-point to the start of the year.

Ignoring the relevant flags for the purpose of this explanation, and labelling the sum of Devex, Capex and Spares as "Additions", the formula above can be simplified as follows:

$$IDC = IDC\ rate * \left(Opening\ RAV + \frac{\frac{Additions}{2}}{1 + \frac{IDC\ rate}{2}} \right)$$

Which can, in turn, be simplified as follows:

$$IDC = IDC\ rate * \left(Opening\ RAV + \frac{Additions}{2 * \left(1 + \frac{IDC\ rate}{2}\right)} \right)$$

And finally, as follows:

$$IDC = IDC\ rate * \left(Opening\ RAV + \frac{Additions}{2 + IDC\ rate} \right)$$

This formula is equivalent to the formula used in the model (other than for the flags, which can be ignored for the purpose of this explanation):

$$IDC = ((1 + IDC\ rate)^{1 - Flag1 - Flag2} - 1) * \left(Op\ PreOpx\ RAV + \frac{Devex + Capex + Spares}{2 + IDC\ rate} \right)$$

Price base and currency conversion

This section references the Nemo Link project to provide a real-world example of how the relevant inflation indices and exchange rate estimates are to be calculated. The same approach will be applied to any future cap and floor project where the Cap and Floor regime is applied also the non-GB indexed portion of the interconnector

Costs during construction

In Nemo Link's PCR submission, costs during construction – development expenditure (Devex), capital expenditure (Capex) and cost of spares – were expressed in euro (EUR) and in nominal terms.

These costs had to be converted in pound (GBP) and in real terms (2013-14 prices) for the purpose of setting cap and floor levels for the project, as these levels need to be expressed in pound and in 2013-14 prices.

The conversion from nominal to real terms was achieved through the PPPI factor, which applies UK RPI inflation to half of the project's total costs and Belgian CPI inflation, adjusted to reflect changes in the exchange rate during the relevant reference period in order to achieve purchasing power parity (PPP), to the other half of the project's total costs.

The conversion from euro to pound was achieved using the XUMAERS exchange rate.

Costs during construction were incurred during the 2008-2019 period.

For those costs incurred during the 2008-2018 period, historical 12-month average of inflation indices (UK RPI and Belgian CPI) and exchange rate (XUMAERS) were used to achieve the two conversions described above, as monthly figures were available for each month during the 2008-2018 period and historical 12-month averages could be calculated for each parameter in each year based on those figures.

For those costs incurred during 2019, the values of the relevant inflation indices and exchange rate used for the conversion from EUR 2019 to GBP 2013-14 were estimated as follows:

- Exchange rate: 7-month average XUMAERS between January and October 2019 (1.1344); and

- Inflation indices: 7-month average UK RPI and Belgian CPI inflation rates between January and October 2019 (2.6310% and 1.6123%, respectively)[14] were applied to the 12-month average of UK RPI and Belgian CPI indices in 2018

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[14] Derived as 10-month average index in January-October 2019 divided by 10-month average index in January-October 2018 minus one.

(281.5833 and 131.2608, respectively) to derive estimates of 288.9918 and 133.3772 for 2019 UK RPI and Belgian CPI respectively.[15]

Costs during operations

In Nemo Link's PCR submission, costs during operations – controllable and non-controllable operating expenditure (opex), replacement expenditure (repex) and decommissioning costs – were expressed in euro (EUR) and in real terms (2018 prices).

These costs had to be converted in pound (GBP) and in real terms (2013-14 prices) for the purpose of setting cap and floor levels for the projects, as these levels need to be expressed in pound and in 2013-14 prices.

Costs during operations will be incurred during the 2019-2043 period.

As for costs during construction, the conversion to real terms (2013-14 prices) was achieved through the PPPI factor, although in this case the costs converted were originally expressed in real terms (2018 prices) rather than nominal terms. Therefore, 12-month average UK RPI, Belgian CPI and XUMAERS in 2018 (January to December) and 2013-14 (April 2013 to March 2014) were used.

The conversion from euro to pound was achieved using the 5-month average XUMAERS exchange rate centred on the month in which operation started (November 2018 to March 2019, as operations started in January 2019).

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[15] All figures in this bullet point are rounded for presentational purposes only (the figures input in the CFFM1 to calculate revised cap and floor levels and PCA adjustments were not rounded).

Appendix 3 - Project finance variations

NeuConnect Britain Limited ("NBL") and Greenlink Interconnector Limited ("GIL") developed this document to provide additional narrative around the changes to the CFFM1 and associated handbook, most notably regarding the new debt facilities which we have added to the CFFM1. This document explains the purpose of each of these facilities, as well as the associated costs structure.

We note that not all the facilities may apply in each licensee's case as we intend for the CFFM1 to work for all project financed projects. Our aim in adding them to the CFFM1 is to ensure that we can capture scenarios that are likely after financial close as the two first project finance developers have informed us.

Debt facilities

1. Senior Debt Facility

    The purpose of the Senior Debt Facility is to finance project costs, including interests and fees during construction. The Senior Debt amount is calculated by applying the gearing to the total eligible costs, while the part not funded by Senior Debt is funded by equity.

    The Senior Debt Facility is drawn over the construction period to match the payment of project costs and is then repaid over the tenor. Debt principal repayments are calculated to maintain a fixed Debt Service Cover Ratio (DSCR), as further detailed below.

    This results in a senior debt drawdown profile and a senior debt principal repayment profile.

2. Standby Debt Facility

    A Standby Debt Facility is a long-term debt facility which is used to cover any potential cost overruns during construction. It can be drawn upon only during the construction period and usually has the same tenor and same repayment schedule as the Senior Debt Facility.

    The size of the Standby Debt Facility is usually calculated by applying the gearing to a standby budget, the portion not covered by debt being covered by standby equity.

The Standby Debt Facility is expected to be cancelled on the project's completion date.

3. Cap and Floor Liquidity Facility

The purpose of the Cap and Floor Liquidity Facility is to cover the time gap between the end of a revenue assessment period where the request for a top-up is being made and the date by which the top-up is actually received by the project company. It is a revolving facility, meaning it can be drawn upon and repaid at any time at the developer's discretion.

In the base case, it is not fully drawn. In fact, the base case assumes lenders' reasonable estimate of the usage of this facility; interest will thus apply on the drawn part and commitment fees apply to the undrawn amount. CFFM1 uses the Cap and Floor Liquidity Facility average outstanding loan to compute the amount to which interest and commitment fees will apply. This will be an output of the PFM.

4. Debt Service Reserve Facility

A Debt Service Reserve Facility is a revolving facility which aims to cover a shortfall of cash in one period and thus to protect the lenders from a potential non-payment; it comes as a replacement (and optimization) of the use of a Debt Service Reserve Account (DSRA). Equally to a DSRA, it is sized to potentially cover debt service for a reasonable period during the life of the project with a maximum period of 6-month for principal plus interest assumed.

In the base case, it is not drawn at any time and commitment fees apply to the full amount during the entire life of the project with no interest payment being due at any time.

5. VAT Facility

A VAT Facility is a short-term revolving debt facility which is used during the construction phase to bridge the delay between the moment VAT is incurred and the moment it is recovered by developers (usually a few months). It is only available during the construction period and is fully repaid a few months after the completion date of the project.

During this period, the borrower will have the right to draw upon the VAT Facility each time it incurs a VAT payment, and this exact amount will be reimbursed once the VAT is recovered from the state. Interest will apply to the outstanding amount of the VAT Facility, and commitment fees will apply to the undrawn amount.

As the drawdown and repayment schedule of the VAT Facility are fully dependent on the monthly Capex payment schedule, CFFM1 uses the VAT Facility average outstanding loan to compute the amount to which interest and commitment fees will apply. This will be an output of the PFM.

6. Other facilities

This is a placeholder in case any other facilities are needed or required by the lenders.

Lenders' remuneration

In a typical loan structure the remuneration paid to financing institutions for such a financing typically comprises some or all of the following elements:

- an up-front fee calculated on the total financing amount to remunerate financiers for the work done by their teams to bring the financing to a close, such that the monies are available to be drawn down by the project;

- commitment fees to be paid periodically during the drawing period, on the undrawn but still committed financing; and

- interest to be paid on the drawn amount of the financing, with the applicable interest rate typically being the sum of the base interest rate (for example Libor or Sonia) and a credit margin.

Upfront fee rates typically depend on current market rates and reflect the complexity of the underlying project and financing, and the work required to bring that project to financial close.

Commitment fees by convention are expressed as a percentage of the margin, typically required to compensate lenders for the costs of reserving capital committed to the project that has not yet being funded into the project.

The base interest rate represents the cost reference for the financing institutions of funding corresponding to the specific debt's drawdown and repayment profile. Its value depends on the global interest rates market.

The base rate can be either fixed or floating. If the source is a fixed rate, the rate will be a market value, taken from the then prevailing interest rate curve based on the weighted average life of the fixed rate financing at the time this rate is fixed.

If the source is a floating rate (as is the case for a bank or other commercial lender), the project will typically borrow funds against a floating rate reference (such as Libor or Sonia). In a further step the project will also typically hedge itself against some or all of the future changes in interest rates over the lifetime of the financing. The project will typically do this by entering into interest rate swap type arrangements, paying a fixed rate to a hedge provider, which in turn will pay the project the corresponding floating rate amounts which can then be used to pay its floating rate interest charges.

The overall cost to the borrower is then the sum of the fixed rate charged by the hedge provider (which should be close to the same market rate under a fixed rate financing) plus a hedging credit spread, which will remunerate the hedge provider for its risk in providing a long-term fixed rate to the project.

The credit margin is typically intended to cover:

- The credit risk taken by the lenders: this is typically computed by lenders taking into account both the probability of default of the borrower and the 'loss given default', which measures the expected debt quantum a lender would lose or write off if the borrower defaulted.

- The lenders specific liquidity cost: this corresponds to the cost to a lender of raising the financing required by it to be used to on-lend to the project; it depends, among other things, on the tenor and currency of the financing, and the lender's own credit rating (or credit standing).

- The lender's operational costs and return requirements: these cover the lender's internal risks (such as operations risk and litigation risk), its cost of doing business and its profit.

Indicative rate ranges

The rate ranges below are purely indicative and will ultimately be determined during the competitive process and will depend on different structuring parameters, including tenor, presence or absence of a tail, gearing, DSCR level, etc.

Table 1: Indicative rate ranges

Facility	Indicative upfront fees	Indicative margin	Indicative commitment fees	Comments
Senior Debt Facility	[1.40 – 2.10]%	[1.40 – 2.10]%	[30-45%] of the margin	Commercial information
Standby Debt Facility	[1.40 – 2.10]%	[1.40 – 2.10]%	[30-45%] of the margin	Commercial information
Cap and Floor Liquidity Facility	[1.40 – 2.10]%	[1.40 – 2.10]%	[30-45%] of the margin	Commercial information
Debt Service Reserve Facility	[1.40 – 2.10]%	[1.40 – 2.10]%	[30-45%] of the margin	Commercial information
VAT Facility	[1.00 – 1.70]%	[1.00 – 1.70]%	[30-45%] of the margin	Commercial information

Structuring parameters

The structuring parameters will largely define the amount of debt which the project can take out, and the terms of repayment.

- Gearing: the borrower will typically be funded by way of debt and shareholder equity; gearing is calculated by dividing the amount of debt by the total construction costs, which include capital expenditures, development expenditures and financial expenses during construction.

- Structuring Debt Service Cover Ratio (DSCR): the structuring DSCR is the ratio of Cash Flow Available for Debt Service (CFADS) to the debt service due which a lender requires to be achieved in its base case.

- Tenor: the tenor is the length of the debt repayment period; it is not necessarily equal to the length of the cap and floor regime as lenders may want to keep a time buffer in case the asset underperforms, and the debt needs to be restructured. This time buffer is called a 'tail'.

Appendix 4 – Project specific inputs for NeuConnect

This appendix provides a detailed overview of how each input in the 'Inputs' sheet of the CFFM1-ACOD financial model used for NeuConnect's was sourced or calculated.

Indexation, currency, and base year price term

GB indexed portion of interconnector: 100%

Currency of cost inputs: £

Base year price term: 2020-21

The first input indicates that GB indexation is used for the entirety of the costs input into the CFFM1. This is due to the fact that the CFFM1 is used to set cap and floor levels only for the GB half of the project; therefore, only half of the total project's costs are input into the CFFM1, and GB indexation is applied to 100% of these input costs.

The second and third inputs indicate, respectively, that cost figures input into the CFFM1 are expressed in Pound Sterling (GBP, £) and that cap and floor levels, which are set in real terms, are expressed in 2020-21 prices.

Variables set after financial close – Actual values

Table 2: Indicative project capex costs profile

CY	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Devex	0.000	0.000	0.000	0.000	1.410	6.217	4.092	5.338	6.792	8.051	0.000	0.000	0.000
Capex	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	167.001	93.700	120.288	218.784
Spares	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	10.817	18.905	25.788	10.822

These are the cost inputs provided (in £m, nominal terms)[16] by the developer, and subsequently revised by Ofgem as part of the cost assessment process, in relation to the

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[16] Please note that pre-operational costs approved in the original FPA publication are entitled "2022 prices", reflecting the date of their submission to Ofgem, rather than their acceptance as real values. We have therefore treated these costs as nominal costs for the purposes of deriving the preliminary cap and floor levels. NBL has notified Ofgem that the 'opex during construction' (labelled here as spares) portion of the £989m should, in their view, be real 2020/21 prices. Ofgem will consider this point at PCR based on evidence NBL can provide at that time.

estimated Devex, Capex and cost of spares to be incurred by the developer. These values were submitted post original FPA, but have been approved for use in the CFFM, as they fall in line with the original FPA figures and are the most up-to-date.

Base year UK RPI inflation index value (CHAW): 294.1667

Table 3: 12-month average UK RPI inflation index value (CHAW)

RPI	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Actual	250.11	256.03	258.54	263.05	272.48	281.58	288.80	293.14	305.00	340.33	0.00	0.00	0.00
Forecast	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	351.97	364.01	376.46

Actual Retail Price Index (RPI) values for calendar years up to 2022 were sourced from the ONS[17]

Long-term forecast values for calendar years from 2023 onwards were calculated assuming long-term annual RPI inflation of 3.42%

Variables set after financial close – Ex-ante allowances for the operational period

Table 4: Indicative project repex, opex, decom costs profile

Operational Years	Years 1	Year 2	Year 3	Year 4	Year 5	Years 6-10	Years 11-15	Years 16-20	Years 21-25
Repex	0.00	0.00	0.00	0.00	0.00	1.280	3.117	2.826	3.521
Decom	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	69.337
C.Opex	21.481	20.165	20.201	20.225	21.806	99.208	96.125	97.540	96.067
NC.Opex	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

These are the cost inputs provided (in £m, real terms, 2020/21 prices)[18] by the developer, and subsequently revised by Ofgem as part of the cost assessment process, in relation to the estimated replacement expenditure (Repex), decommissioning costs

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[17] https://www.ons.gov.uk/economy/inflationandpriceindices/timeseries/chaw/mm23

[18] Please note that relevant post-construction costs detailed in the FPA decision are entitled "2022 prices", which reflected language used in NeuConnect's FPA submission to mean real 2020/21 prices, submitted in 2022.

(Decomm), controllable operating expenditure (C.Opex), and non-controllable operating expenditure (NC.Opex). These values were submitted post original FPA by the developer and have been accepted as they fall in line with the original FPA decision and are the more up-to-date figures.

Variables set at financial close – Finance

The cap return rate used to determine allowed returns at the cap represents the allowed cost of equity (CoE) during operations; it was estimated using the Capital Asset Pricing Model (CAPM) with the following input values and calculations:

Table 5: Financial parameters for cap return calculation

Parameter	Value	Explanation
Risk-free rate (RfR)	1.60%	Fixed for Window 2 projects
Total market return (TMR)	7.20%	Arithmetic mean of real UK equity returns since 1900 (DMS 2022)
RPI 'formula effect' adjustment (RPI adj)	0.40%	Fixed for Window 2 projects
Market risk premium (MRP)	5.20%	= TMR – RfR – RPI adj
Asset beta (βa)	0.625	Fixed for Window 2 projects
Notional operational gearing (g)	50%	Fixed for Window 2 projects
Equity beta (βe)	1.25	= βa / (1-g)
Cap return	8.10%	= RfR + (βe x MRP)

The floor return rate used to determine allowed returns at the floor represent the allowed cost of debt (CoD) during operations; it was estimated using the Final Investment Decision (FID) / Financial Close date (27 July 2022) as the reference date for the input values in the table below, where:

- The benchmark index used to estimate the cost of debt (in nominal terms) is the UK iBoxx non-financials 10+ BBB-rated index; and

- The inflation rate used to deflate the cost of debt from nominal to real is the breakeven inflation rate underpinning the difference between the yields on nominal and real 10-year UK Gilts (Inflation Zero Coupon, IUDMIZC).

Table 6: IUDMIZC index

Date	Index 2	Inflation	Real Rate
20 days to FID	BBB	IUDMIZC	= (1+BBB) / (1+IUDMIZC) - 1
29/06/2022	4.83%	3.45%	0.31%
30/06/2022	4.79%	3.50%	0.29%
01/07/2022	4.63%	3.53%	0.24%
04/07/2022	4.75%	3.57%	0.26%
05/07/2022	4.67%	3.55%	0.25%
06/07/2022	4.67%	3.47%	0.27%
07/07/2022	4.66%	3.51%	0.25%
08/07/2022	4.72%	3.50%	0.27%
11/07/2022	4.69%	3.48%	0.27%
12/07/2022	4.66%	3.44%	0.27%
13/07/2022	4.64%	3.42%	0.28%
14/07/2022	4.65%	3.38%	0.29%
15/07/2022	4.70%	3.38%	0.30%
18/07/2022	4.74%	3.35%	0.32%
19/07/2022	4.79%	3.30%	0.35%
20/07/2022	4.71%	3.37%	0.31%
21/07/2022	4.61%	3.33%	0.30%
22/07/2022	4.49%	3.29%	0.28%
25/07/2022	4.50%	3.24%	0.30%
26/07/2022	4.47%	3.32%	0.27%
20-day average to FID (unrounded)			0.258%
20-day average to FID (rounded)			0.26%

The average IUDMIZC inflation rate over the 20 days to FID (3.25%, rounded to 3.25%) is used as a long-term inflation forecast, as explained under sections 'Variables set after financial close – Actual values' and 'Variable set at financial close – Tax – Operational years' of this appendix.

The IDC rate used to determine allowed returns during construction, which are capitalised on pre-operational RAV and transaction costs, represents the allowed

weighted average cost of capital (WACC); it was estimated using the CAPM for the CoE (but with different cost of debt and risk-free rate from those used to estimate the cap return rate[19]) and the floor return rate as the CoD; the input values and calculations used to estimate the IDC rate are as follows:

Table 7: Financial parameters for IDC calculation

Parameter	Value	Explanation
Cost of debt (CoD)	1.22%	= Floor return rate (see above)
Risk-free rate (RfR)	-1.68%	10-year average of monthly yields on real 10-year UK Gilts (IUMAMRZC) to the month of FID
Total market return (TMR)	7.20%	Arithmetic mean of real UK equity returns since 1900 (DMS 2022)
RPI 'formula effect' adjustment (RPI adj)	0.40%	Fixed for Window 2 projects
Market risk premium (MRP)	8.48%	= TMR – RfR – RPI adj
Equity beta (βe)	1.25	Market-cap-weighted average raw equity beta of four comparators (CNA, EON, RWE, SSE)
Cost of equity (CoE)	6.80%	= RfR + (βe x MRP)
Pre-operational gearing (g)	37.50%	Set within IDC
Vanilla WACC	3.76%	= CoD x g + CoE x (1-g)
IDC (unrounded)	3.06%	= Vanilla WACC + DRP + CRP
IDC (rounded)	3.06%	Percentage rounded to 2 decimal places

Pre-operational notional gearing: 37.50%

Operational notional gearing: 50.00%

Equity transaction costs: 5.00%

Debt transaction costs: 2.50%

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[19] This is to reflect the fact that the IDC rate applies to the construction period, which is significantly shorter and closer in time to the financial close date than the operational period, to which the cap return rate applies. For this reason, more emphasis is placed on recent prevailing market rates that are project-specific for the IDC rate, and on historical long-term averages that are fixed for all Window 1 projects for the cap return rate.

Pre-operational and operational notional gearing levels were determined as explained above in the tables explaining the calculations underpinning the cap return rate and the IDC rate.

Equity and debt transaction costs are fixed values for Window 1 projects.

Variables set at financial close – Model operation

Model start date: 01/01/2013

Regime start date: 01/04/2028

End date for IDC: 31/03/2028

Start of operations: 01/04/2028

Number of operational years: 25

The choice of model start date is to ensure that the first time period covered by the model (CY 2013) precedes the first time period in which costs were incurred by the developer (CY 2014).

The regime start date (1st April 2028) is set in NeuConnect's licence.

The operations start date was set based on information provided by the developer and is the date that the NeuConnect entered commercial operations.

The number of operational years (25) is the default length of the cap and floor regime, as set in NeuConnect's licence.

Inputs for the calculation of the ACOD floor correspond to similar inputs in the project finance Banking Model.

Variables set at financial close – Tax – Financial years

Long-term expected UK RPI inflation: 3.42%

This value was estimated as explained in section 'Variables set at financial close – Finance' of this appendix.

Values for 12-month average UK RPI inflation index (CHAW) were determined as explained in section 'Variables set after financial close – Actual values' of this appendix.

In the case of NeuConnect, the two inflation profiles (the one used for cost indexation and the one used for tax calculations) are the same because the relevant reference years for both construction costs and tax calculations are UK financial years, i.e. 1st April to 31st March. For other projects, these two profiles might differ.

Variables set at financial close – Tax – Operational years

Corporate tax rate: 25%

Capital allowance rate: 6%

NeuConnect reached FID in July 2022 and will enter operations phase in 2028. As such, we have decided to use a corporation tax rate of 25% in line with Budget 2022 announced by the government.

Variables set at financial close – Tax – Annuity

Tax element of Cap and Floor annuity previously calculated and fixed: No

This input only applies at the Post Construction Review (PCR) stage and reflects the choice of whether the tax allowances at the cap and the floor, first calculated at Final Project Assessment (FPA) stage, are to be updated at PCR.

At FPA, there is no tax element previously calculated and fixed, so the selection for the input is 'No'.