

Guidance

Greenlink Cap and Floor Financial Model 2 Handbook (GCFFM2H)

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The purpose of the GCFFM2H is to provide an overview of the aim, structure and functioning of the Greenlink Cap and Floor Financial Model 2 (GCFFM2), the underlying building blocks approach, and the content of each worksheet within the model (in terms of its inputs, calculations and outputs).

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1. GCFFM2 Version Control Log

Handbook version	Model version	Prepared by	Reviewed by
20260610	1.1	Tomo Sandeman, Head of Financial Modelling, Regulatory Finance	Government Actuary's Department (GAD)

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2. Purpose of the GCFFM2

- 2.1 The purpose of the CFFM2H is to provide an overview of the aim, structure and functioning of the CFFM2, and the content of each worksheet within the model (in terms of its inputs, calculations and outputs).
- 2.2 Section 3, “Introduction to the CFFM2”, provides a high level overview of the purpose of the CFFM2; it sets out at what stages in the lifetime of a cap and floor project the CFFM2 is used, and at what stage the outputs of the Cap and Floor Financial Model 1 (CFFM1) are imported into the CFFM2.
- 2.3 Section 4, “Building blocks of the CFFM2”, explains the rationale for any adjustments to the cap and floor levels that are implemented through the CFFM2, and how these adjustments interact with each other to determine the overall required revenue adjustment and level of payment to or from GB consumers; this is also illustrated through the flowchart in Figure 1.
- 2.4 Section 5, “Relevant documents and inputs data to the CFFM2”, provides a brief overview of the policy documents that are relevant to the CFFM2 and of the type and source of inputs data that are used in the model.
- 2.5 Section 6, “High-level overview of the CFFM2 worksheets”, provides a brief overview of the content of each worksheet within the CFFM2:
 - Cover;
 - Version Control;
 - Inputs;
 - Data Sources;
 - Costs & Revenue;
 - ORA Adjustment;
 - DC Adjustment;
 - Indexation;
 - Availability;
 - Assessment; and
 - Revenue Adjustment.
- 2.6 Appendix 1 provides a detailed overview of the purpose and structure of each worksheet within the CFFM2; of the inputs and calculations used within each worksheet; of the outputs produced by each worksheet; and of the interlinkages between different worksheets.

3. Introduction to the GCFFM2

3.1 The GCFFM2 is a Microsoft Excel based financial model to be used by electricity interconnectors operating under the cap and floor regime's project finance variations. It is used during the 25-year operational period to:

- Determine, if required, an adjustment to the baseline level of controllable operating expenditure (Opex) underpinning the cap, notional floor and actual floor levels set at the Post Construction Review (PCR) stage using the CFFM1;
- Determine any adjustment required during operations to the baseline level of decommissioning costs underpinning the cap and floor levels set at PCR stage;
- Index cap and floor levels to account for inflation, by converting the real cap and floor levels set at PCR (and any subsequent adjustments required to reflect changes to baseline levels of controllable Opex and decommissioning costs) into nominal cap and floor levels for the purpose of assessing actual revenue against these levels;
- Adjust cap and floor levels depending on whether predetermined availability targets are met and associated incentives apply (+/-2% incentive at the cap; binary application of the floor, i.e. either full floor or no floor depending on whether minimum availability is achieved);
- Assess actual revenue against cap and floor levels (including any adjustments required to reflect changes to baseline controllable Opex and decommissioning costs, inflation indexation and availability incentives) on an NPV-neutral basis and at predetermined intervals (every five years, unless more frequent assessments are required);
- Provide Temporary Financial Support when required and keep track of the repayment of any utilised support;
- Assess actual non-controllable Opex against the baseline level determined at PCR stage (non-controllable Opex is excluded from the building blocks used in the CFFM1 to set cap and floor levels and treated separately from the other operational costs by applying a pass-through mechanism);
- Determine whether, in any relevant period of time, there is a revenue excess (above the cap) or shortfall (below the floor) and, therefore, whether any payments need to be made, respectively, to or from GB consumers; and determine the amount of any required payments; and
- Determine the amount of any pass-through payments required to reconcile different levels of actual and baseline non-controllable Opex.

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- 3.2 The cap and floor levels used as an opening input into the GCFFM2 are the closing output of the CFFM1; they are determined as real-terms annuities aimed to limit the upward and downward exposure to merchant risk of the revenue earned by the interconnector developer during the operational period.
- 3.3 The cap level represents the maximum amount of annual revenue that the developer is allowed to retain; revenue above this level has to be transferred to consumers.
- 3.4 The floor level represents the minimum amount of annual revenue that the developer is guaranteed to earn (provided it meets a minimum availability requirement); revenue below this level has to be topped up by consumers. At the start of the regime, the developer chooses between two possible floor levels: notional floor and actual floor.
- 3.5 During operations, the GCFFM2 is used to determine any required adjustments to the cap and floor levels determined at PCR stage (using the CFFM1); to assess actual revenue against these adjusted levels; and to assess actual non-controllable Opex against the baseline level.
- 3.6 Key points:
- The GCFFM2 covers the period of 25 years from the start date of the regime (i.e. the operational period), with the preceding development and construction period covered by the CFFM1.
 - The GCFFM2 is used to adjust cap and floor levels during operations to reflect changes in controllable Opex and decommissioning costs, inflation and availability; to assess actual revenue against adjusted cap and floor levels; and to assess actual non-controllable Opex against baseline level.
 - The GCFFM2 is to be run annually once actual figures (revenue, costs, inflation and availability) from the previous operational year have become available.
 - By default, any payments due to or from GB consumers are settled every five years on an NPV-neutral basis, unless more frequent settlements are required (the GCFFM2 is designed to accommodate within-period settlements if these are required).
 - The GCFFM2 provides Temporary Financial Support when availability is below target levels. This allows the interconnector to meet its project finance covenants while availability issues are addressed. Temporary Financial Support is provided whether the developer has selected the notional or the actual floor.

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- The GCFFM2 calculates revenue adjustments under both the notional floor and the actual floor. Whichever floor it has been decided that the project will operate under, outputs for the other floor should be ignored.

4. Building Blocks of the GCFFM2

- 4.1 As explained in section 3, the main purpose of the GCFFM2 is to adjust cap and floor levels during operations and to compare actual revenue against adjusted cap and floor levels, to determine whether any payments are due to or from GB consumers.
- 4.2 The GCFFM2 is also used to assess actual non-controllable Opex against the baseline levels identified at PCR stage. Any difference between actual and baseline non-controllable Opex is treated separately from changes to other operational costs, by applying a pass-through mechanism – i.e. if actual costs exceed the baseline, the developer is allowed to recover the difference from consumers; if actual costs are below the baseline, the developer is required to transfer the difference to consumers.
- 4.3 There are five building blocks which combine to determine the overall adjustment to the cap and floor levels during operations:
 - Changes in controllable Opex;
 - Changes in decommissioning costs;
 - Inflation;
 - Availability incentives; and
 - Utilisation or subsequent repayment of Temporary Financial Support.

Controllable Opex

- 4.4 Cap and floor levels set through the CFFM1 ahead of the regime start date (preliminary levels at FPA stage and final levels at PCR stage) include a baseline allowance to recover controllable Opex that will be incurred during operations.
- 4.5 At any point during the last 15 years of the 25-year operational period (but not during the first 10 years), the interconnector can request, through an ORA¹ submission, one adjustment (but no more than one) to this baseline level of controllable Opex, to rectify a misalignment between revised cost forecasts for the remainder of the period and original baseline levels assumed at PCR stage. Misalignments between actual costs already incurred in the years preceding the ORA submission and baseline levels for those years are not reflected in the adjustment to cap and floor levels.
- 4.6 If this request is accepted, cap and floor levels are then adjusted to reflect the difference between baseline and revised controllable Opex in the reminder of the period on an NPV-neutral basis.

¹ Opex Reassessment Adjustment

Decommissioning costs

- 4.7 Cap and floor levels set through the CFFM1 ahead of the regime start date (preliminary levels at FPA stage and then final levels at PCR stage) include a baseline allowance to recover decommissioning costs that will be incurred during operations.
- 4.8 At any point during the 25-year operational period (and, if required, more than once), the interconnector can request an adjustment to this baseline level of decommissioning costs to rectify a misalignment between revised cost forecasts for the remainder of the period and original baseline levels assumed at PCR stage.
- 4.9 If any such request is accepted, cap and floor levels are then adjusted (if required, multiple times) to reflect the difference between revised and baseline decommissioning costs in the remainder of the period on an NPV-neutral basis.

Inflation

- 4.10 Cap and floor levels set at PCR stage (as well as any subsequent adjustments required during operations to reflect changes in controllable Opex and decommissioning costs) are expressed in real terms.
- 4.11 During the operational period, these levels are adjusted to reflect outturn inflation since the base year and converted from real to nominal.
- 4.12 Inflation indexation is required to assess whether the actual revenue earned by the interconnector developer, which is expressed in nominal terms, exceeds the cap or falls short of the floor in any given year.
- 4.13 The cap, the notional floor and a portion of the actual floor are indexed using RPI (CHAW) index. A second portion of the actual floor, corresponding to the debt service element of the floor, is indexed using a specific set of inflation assumptions aligned with those in the underlying project finance debt.

Availability incentives

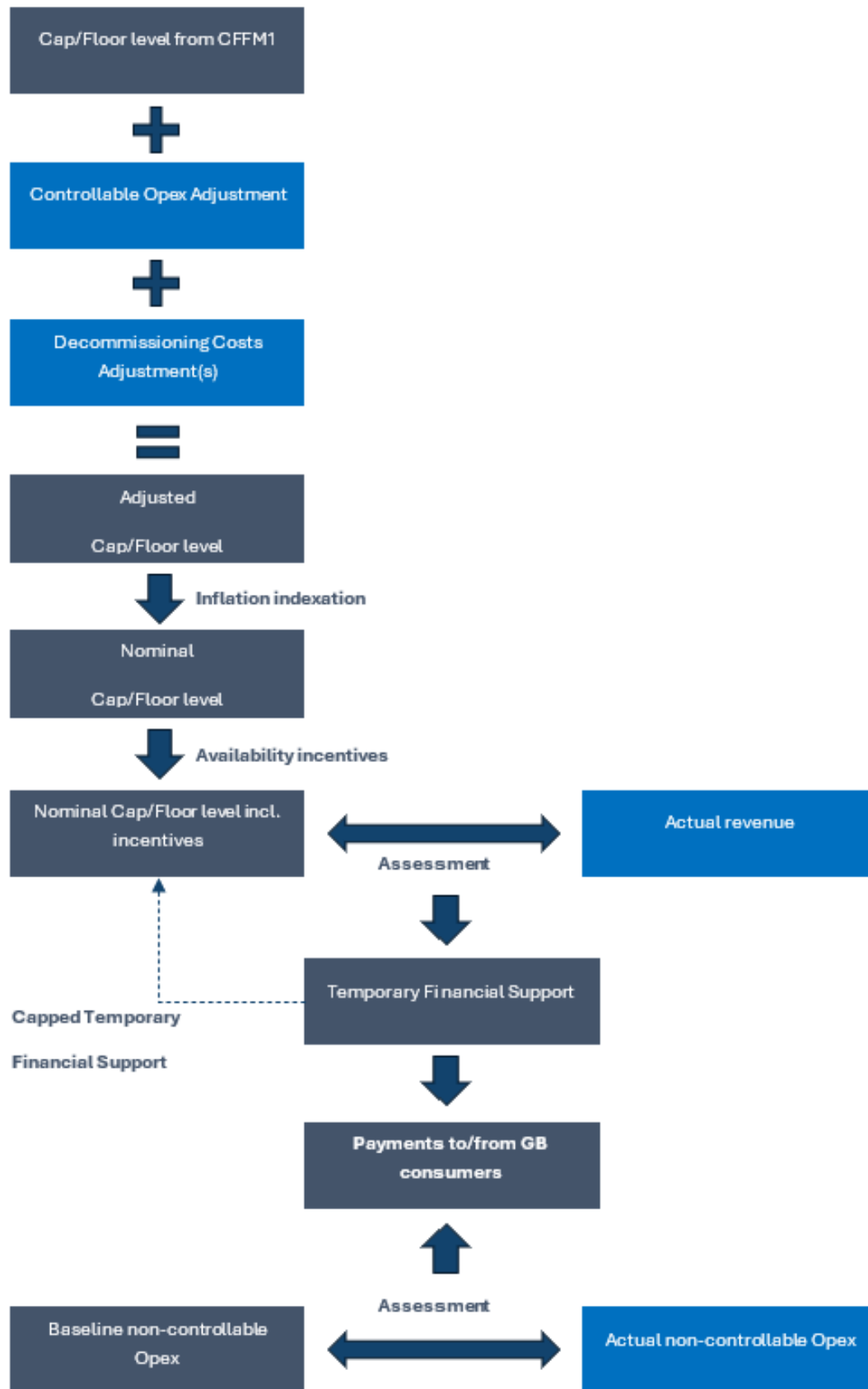
- 4.14 The interconnector developer is required to meet a minimum availability threshold (currently 80.00%) as well as incentivised to exceed a target availability level (e.g. 93.40% for Viking Link).
- 4.15 The minimum availability threshold is used to determine whether the revenue floor is available to the developer. If actual revenue falls short of the floor level, the developer receives a top-up from consumers of an amount equal to the difference between floor level and actual revenue, but only if the minimum availability threshold is met; if actual availability is below this threshold, the developer receives no revenue top-up. An exception to this is if the developer opts to receive Temporary Financial Support, in which case a top-up is received when the minimum availability threshold is met, to be repaid when revenues are once

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again above floor level. Temporary Financial Support can be provided until the point when total outstanding support exceeds a defined limit.

- 4.16 Outstanding support is tracked via a balance, which is added to when Temporary Financial Support is provided, and reduced when there are either automatic repayments in the event of revenues exceeding the floor level or discretionary extra repayments. Additionally, if the project has opted to use the actual floor then, in years when the availability incentive has been met and floor payments are used, if the actual floor is greater than the notion floor the difference will be added into the outstanding temporary support balance to be repaid in future years. Each year, an uplift is applied to the opening balance using the Operational Discount Rate.
- 4.17 The target availability level is used to determine to what extent the cap level should be increased or reduced to reward or penalised the developer for performing above or below this target availability level. The maximum range of this adjustment is a 2% increase or decrease to the cap level.
- 4.18 Once the four adjustments described above are applied to the cap and floor levels, the actual revenue earned by the developer is assessed against these levels at regular intervals (by default, every five years; but more frequent assessments can be undertaken, if required) and on NPV-neutral basis, to determine whether any payments are due from the developer to GB consumers, or from GB consumers to the developer.
- 4.19 Non-controllable Opex is subject to a parallel assessment to determine whether actual costs exceed or fall short of the baseline level; the developer is then, respectively, allowed to recover or required to transfer the difference from/to consumers via a pass-through mechanism.

Figure 1: Building blocks of the GCFFM2

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5. Relevant documents and data inputs to the GCFFM2

- 5.1 The GCFFM2 is structured to comply with the licence conditions to which the developer granted the cap and floor regime is subject. Similarly, this handbook (GCFFM2H) 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.
- 5.2 In addition to the project's licence, the GCFFM2 and its handbook aim to reflect any relevant policy decision taken during the operational phase of the project, for example in relation to:
- A revision of the controllable Opex allowance (following an ORA submission); or
 - A revision of the decommissioning costs allowance (following a DC² submission).
- 5.3 Licence conditions, decision documents and other relevant documents (e.g. technical availability models) concur to determine the structure of the GCFFM2, the content of this handbook and the value of some of the data inputs used within the model.
- 5.4 Overall, the GCFFM2 uses inputs from a variety of sources, including submissions from the developer (such as via the Regulatory Instructions and Guidance (RIGs)), and Ofgem's subsequent assessment of these submissions (e.g. in relation to revenue and availability); determinations made by Ofgem in relation to the appropriate value of certain parameters (e.g. ORA and DC adjustments); and a number of independent external data sources (e.g. inflation and exchange rate).
- 5.5 The inputs used throughout the model are populated in the 'Inputs' sheet; the sources of these inputs are listed in the 'Data Sources' sheet.

² Decommissioning Costs

6. High-Level overview of the GCFFM2 worksheets

- 6.1 This section provides a brief overview of the content of each worksheet within the CFFM2; for a detailed overview of the purpose and functioning of each sheet, please refer to Annex I. The CFFM2 comprises 13 sheets, which are detailed below

Cover

- 6.2 The 'Cover' sheet includes a key to interpret the formatting used throughout the model and a description of the content of each sheet in the model.

Version Control

- 6.3 The 'Version Control' sheet contains a log listing all versions of the GCFFM2 and detailing the changes introduced within each version relative to the previous version.

Inputs

- 6.4 The 'Inputs' sheet contains all the inputs used throughout the model to determine the amount of any payments due to or from GB consumers during the operational period.
- 6.5 All values exported from this sheet into the rest of the model are either inserted manually into the sheet or calculated in the sheet using manually inserted inputs.

Data Sources

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

Costs

- 6.7 The 'Costs' sheet summarises the baseline levels of controllable and non-controllable Opex and decommissioning costs assumed for the operational period.
- 6.8 It also converts the currency of actual non-controllable Opex costs and adjustments (e.g. from EUR to GBP), where required.

Revenue

- 6.9 The 'Revenue' sheet converts the currency of actual revenue to be assessed against cap and floor levels (e.g. from EUR to GBP), where required.

ORA Adjustment

- 6.10 The 'ORA Adjustment' sheet compares the revised controllable Opex profile determined following an ORA submission against the original baseline level used

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to set cap and floor levels at PCR stage and determines the adjustment to the cap and floor levels that is required to reflect the revised controllable Opex profile.

- 6.11 Note: an ORA adjustment to controllable Opex can only be requested after the first 10 years of operations, and only one adjustment can be requested during the 25-year operational period.

DC Adjustment

- 6.12 The 'DC Adjustment' sheet compares any revised decommissioning cost profiles against the original baseline level used to set cap and floor levels at PCR stage, or any subsequent revision, and determines the adjustment to the cap and floor levels that is required to reflect each revised decommissioning costs profile.

- 6.13 Note: an adjustment to decommissioning costs can be requested at any time during the 25-year operational period, and multiple adjustments can be requested.

Indexation

- 6.14 The 'Indexation' sheet summarises the original cap and floor levels set at FPA stage (using the CFFM1), the PCA adjustments required to set final cap and floor levels at PCR stage (also determined using the CFFM1), the controllable Opex adjustments determined in the 'ORA Adjustment' sheet and the decommissioning cost adjustments determined in the 'DC Adjustment' sheet.
- 6.15 These profiles are then aggregated and inflated to determine nominal cap and floor levels before any availability incentive is applied. The actual floor is split into two elements: debt service element and other costs element. The debt service element may be indexed with a separate inflation index, whilst the other cost element is indexed with the same inflation index as the cap and the notional floor.

Availability

- 6.16 The 'Availability' sheet contains an assessment of actual availability against a minimum threshold (currently 80.00%) and a target level (e.g. 93.40% for Viking Link) to determine if the floor applies (depending on whether the minimum availability threshold is met) and the magnitude of any adjustment required at the cap (within a +/-2% range, depending on the level of actual availability relative to the target level). If the cumulative Temporary Financial Support outstanding exceeds the capped support limit then the floor availability adjustment falls to zero until repayments have been made to bring outstanding support back below the limit.

Assessment

- 6.17 The 'Assessment' sheet combines the adjustments to actual revenue which feed into the ICfT term. These adjustments are: an assessment of actual revenue

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against cap and floor levels as adjusted in the previous sheets; an assessment of actual non-controllable Opex against the baseline level underpinning the cap and floor levels set at PCR stage; an assessment of the provision and repayment of Temporary Financial Support measures; and the True-up Term.

- 6.18 Actual revenue and actual non-controllable Opex assessments return, respectively, a cap and floor revenue adjustment and a pass-through revenue adjustment. The assessments are undertaken on an NPV-neutral basis and at regular intervals to cover the assessment periods, which can be set at the outset of the regime at a frequency of between one and five years.
- 6.19 The assessment for provision and repayment of Temporary Financial Support measures are calculated based on actual revenues after NPV-neutral cap and floor revenue adjustments have been applied. If the project draws on temporary support, the amount utilised is added to an ongoing balance which is uplifted annually by the Operational Discount Rate. Repayment adjustments are either calculated automatically in subsequent years when revenue exceeds the floor level, or the project may opt to make an Extra Repayment of Temporary Support. The outstanding balance of support (“Outstanding Temporary Support Before Equity Distribution”) must be brought to zero before equity distributions can be made.
- 6.20 The Temporary Financial Support mechanism is similar whether the project has elected to operate under either the notional or actual floor. One exception to this is that if the project has opted to use the actual floor then, in years when the availability incentive has been met and floor payments are used, if the actual floor is greater than the notion floor the difference will be added into the outstanding temporary support balance to be repaid in future years.

Revenue Adjustment

- 6.21 The ‘Revenue adjustment’ sheet combines the ICF term determined in the ‘Assessment’ sheet with the share of revenue adjustments attributable to GB consumers in order to determine the amount of any payment due:
- From the developer to GB consumers, if actual revenue exceeds the adjusted cap and/or non-controllable Opex is below baseline level; or
 - From GB consumers to the developer, if actual revenue falls short of the adjusted floor (and the minimum availability threshold is met) and/or non-controllable Opex is above baseline level.

Audit

- 6.22 The ‘Audit’ sheet provides a summary of the project state and associated adjustments in each period, using flags to indicate information such as whether

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revenues are above the cap or below the floor, or whether temporary financial support is being provided. This sheet is for information purposes only.

Appendices

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Appendix 1 Detailed overview of the GCFFM2 worksheets

A1.1 The purpose of Appendix 1 is to provide a detailed overview of the purpose and structure of each worksheet within the GCFFM2; of the inputs and calculations used within each worksheet; of the outputs produced by each worksheets; and of the interlinkages between different worksheets.

A1.2 The GCFFM2 comprises 11 sheets:

- a) Cover;
- b) Version Control;
- c) Inputs;
- d) Data Sources;
- e) Costs & Revenue;
- f) ORA Adjustment;
- g) DC Adjustment;
- h) Indexation;
- i) Availability;
- j) Assessment;
- k) Revenue Adjustment; and
- l) Audit.

a. Cover

A1.3 The 'Cover' sheet contains three sections:

- i) **Model key:** a key to interpret the font and fill colours used throughout the model;
- ii) **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

b. Version Control

A1.4 The 'Version Control' sheet contains a log listing, for each relevant version of the GCFFM2:

- i) 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);

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- ii) File pathname;
- iii) Previous version of the model on which the relevant version is based;
- iv) Name of the model author or editor responsible for implementing the changes in the relevant version;
- v) Date on which the relevant version is finalised;
- vi) High-level description of the changes implemented;
- vii) Rationale for implementing the changes;
- viii) Location of the changes within the model;
- ix) Impact of the changes on the outputs of the model (if any);
- x) Indication of whether quality assurance (QA) was performed and by whom; and
- xi) Any relevant comments relating to QA.

c. Inputs

- A1.5 The 'Inputs' sheet contains all the inputs used throughout the model; 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.
- A1.6 Section **Items transferred from CFFM1** contains all relevant items that are transferred from the CFFM1 into the GCFFM2, grouped in six sub-sections:
- i) **Base year and currency:** base year price term (cell I11) and currency of revenue and cost inputs (cell I13);
 - ii) **Model operation:** regime start date (cell I17), other relevant dates (cells I18 to I20), number of operational years (cell I21), and Debt Service period for Actual Floor (cell I24);
 - iii) **Cap and Floor levels:** preliminary cap and floor levels set at FPA stage (cells I28-31) and PCA adjustment to these levels determined at PCR stage (cells I33-36);
 - iv) **Baseline cost inputs during operations:** baseline levels of controllable and non-controllable Opex and decommissioning costs underpinning cap and floor levels set at PCR stage (rows 40 to 42). Where necessary, the baseline allowed costs that are in generic calendar operational years in CFFM1 are reprofiled so they align to financial years before bringing them over to GCFFM2, the totals of each of the reprofiled cost inputs remain the same. Greenlink Regime Start Date is 1 May 2022 . The regime duration comprises of 26 Relevant years, with the first and last Relevant years being partial years. The first Relevant year runs from the Regime Start Date to 1 December

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of that calendar year, and the last Relevant year runs from 1 January to the final day of the Regime Duration. . This approach aligns with Special Condition 3 Part J of the Greenlink licence³;

- v) **Financial returns:** allowed rates of return at the cap and floor (cells I46 and I48);
- vi) **Base year indices:** average inflation index during the base year for the GB portion of the interconnector (cell I52) and (if applicable) the non-GB portion (cell I53), and average exchange rate during the base year (cell I54).

- A1.7 Section **Regime timings and design – Model operation** contains a number of relevant dates, flags and information regarding the number of days or years within relevant time periods.
- A1.8 Cells I61 to I63 import values the previous section; row 64 calculates the number of days within each financial year.
- A1.9 The regime end date in cell I67 is calculated relative to the regime start date in cell I61; the regime start date flags and end date flags in rows 66 and 68 are calculated based on the relevant regime start and end dates.
- A1.10 Cell I69 calculates the number of cap days within the first financial year; the flag in row 70 calculates the proportion of days within each financial year to which the cap applies; cell I71 checks that the sum of the values in row 70 equals the number of operational years in cell I82.
- A1.11 The floor start date is input in cell I73, with the start and end date of the year in which the floor start date occurs calculated in cells I74 and I75.
- A1.12 The floor start date flag is calculated in row 76 based on the relevant floor start date; cell I77 calculates the number of floor days within the first financial year; the flag in row 78 calculates the proportion of days within each financial year to which the floor applies; cell I79 checks that the sum of the values in row 78 equals the number of operational years in cell I82⁴. Row 80 calculates the

³ In the CFFM1, these cost inputs are estimated in relation to each operational year: operational year 1, operational year 2, etc. (where operational year 1 identifies the full year starting on the first day of operations); this is due to the fact that the exact operations start date is likely to be unknown when the CFFM1 is first populated, and therefore the operational years can only be identified in a generic way (Year 1, Year 2, etc.). In the GCFFM2, these costs need to be input in relation to specific financial years (e.g. 1 Jan 2019 to 31 Dec 2019, or the specific Relevant Year if different from 12-months etc.); in the GCFFM2, the first operational year is the exact financial year during which operations start or the Relevant Year. Therefore, the cost inputs in the CFFM1 need to be pro-rata'd before they can be input into the GCFFM2. Using an illustrative example, if in the CFFM1 operational costs are £5m in Year 1 and £6m in Year 2; if the first two relevant financial years of operations in the GCFFM2 are 1 Jan 2019 to 31 Dec 2019 and 1 Jan 2020 to 31 Dec 2020; and if the operations start date is 1 July 2019; then Year 1 (£5m) needs pro-rata'd between 2019 (£2.5m) and 2020 (£2.5m), and Year 2 (£6m) between 2020 (£3m) and 2021 (£3m); as a result, in GCFFM2, the first operational year (1 Jan 2019 – 31 Dec 2019) is populated with £2.5m and the second (1 Jan 2020 – 31 Dec 2020) with £5.5m (£2.5m plus £3m).

⁴ We note that Greenlink's Regime Start Date is 1 January 2023. The Floor Start Date is 1 April 2024.

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proportion of days within each year to which the actual floor debt service component applies.

- A1.13 The length of the assessment period is input in cell I83 (five years by default) and the percentage indicating the GB indexed portion of the interconnector in cell I85. Where the model covers both the GB and non-GB portions, the cell takes the value of the proportion that is indexed.
- A1.14 Section **Variables to be updated** contains three subsections: 'Cost items to be updated up to and beyond PCA stage (actual)', 'Revenue items to be updated (actual)' and 'Actual floor temporary support'.
- A1.15 In sub-section **Cost items to be updated up to and beyond PCA stage (actual)**, actual non-controllable Opex costs are input in row 91 and actual non-controllable Opex adjustments post NRA review are input in row 92.
- A1.16 In sub-section **Revenue items to be updated (actual)**, actual gross congestion revenues are calculated in row 104 as the sum of the values input in relation to each revenue component in rows 96 to 103.
- A1.17 Market related costs in row 109 are calculated as the sum of the values input in relation to each market cost item input in rows 106 to 108.
- A1.18 The value associated with any income adjusting event is input in row 111.
- A1.19 The notional assessed revenue in row 113 is calculated by deducting market related costs in row 109 and income adjusting events in row 111 from gross congestion revenues in row 104.
- A1.20 In row 115, the assessed revenue is set equal to the higher of notional assessed revenue in row 113 and zero.
- A1.21 True-up term values that have been agreed with Ofgem are inserted in row 117.
- A1.22 In sub-section **Actual floor temporary support**, the request for temporary support is input in row 121 and the scalar of that support (between 0 and 1) is input in row 122. The CAPOTSN/CAPOTSA floor multiple is input in cell I123 (with a default value of 4), and any Extra Repayment of Temporary Support values are input in row 125.
- A1.23 Section Adjustment to Cap and Floor levels contains five subsections:
- i) Availability incentive;
 - ii) Inflation and exchange rate;
 - iii) PCA adjustment;
 - iv) ORA adjustment; and
 - v) DC adjustments.

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- A1.24 In sub-section **Availability incentive**, the values required to calculate the reward or penalty for outperformance or underperformance of the availability target level are input in cells I131 to I1134.
- A1.25 The interconnector rated capacity is input in cell I136, while cell I137 calculates the number of hours per year.
- A1.26 The values input in rows 139 and 140 reflect, respectively, the total and allowed amount of outages in the relevant cap period within each year, with the difference between the two calculated in row 141.
- A1.27 Similarly, the values input in rows 142 and 143 reflect, respectively, the total and allowed amount of outages in the relevant floor period within each year, with the difference between the two calculated in row 144.
- A1.28 The amount of outages associated with exceptional events is input in row 145.
- A1.29 The minimum availability threshold, which is used to determine whether the floor applies, is input in cell I147.
- A1.30 In sub-section **Inflation and exchange rate**, the base year index values in cells I151 to I153 are imported from section 'Items transferred from CFFM1', sub-section 'Base year indices'.
- A1.31 The actual annual average values of these indices during the operational period (and the year before the start of operations) are input in rows 155 to 158. These are 12-month average values with the exception of year 1 of operations, when the reference period for calculating the average includes only the months of operations within the relevant year.
- A1.32 The Indexation Factor that is used to convert base year on a RPI basis is calculated in row 160 using figures from cells 155 to 158. These rows contain the functionality to calculate a hybrid inflation based on non-GB inflation in addition to RPI, but this functionality is not used in this version of the model.
- A1.33 Rows 162 to 164 calculates a combined SONIA bank rate plus margin rate. This combined rate is used for the calculation of the Operational Discount Rate in the Assessment tab.
- A1.34 Rows 166 to 169 are used to calculate the indexation factor for the debt service portion of the actual floor in row 170. This calculation uses a specific set of inflation assumptions aligned with those in the underlying project finance debt.
- A1.35 In sub-section **PCA adjustment**, a number of relevant dates (cells I174 to I176) and flags (rows 178 and 179) are input or calculated to accommodate the application of the PCA adjustments required to adjust preliminary cap and floor levels at PCR stage.
- A1.36 The switch in cell I177 indicates whether the PCA adjustments to the cap and floor levels are to be applied ('Yes') or not ('No').

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- A1.37 In sub-section **ORA adjustment**, the input switch in cell I183 indicates whether an ORA adjustment to cap, notional floor and ACOD floor levels to reflect a revised controllable Opex profile is to be applied or not.
- A1.38 The ORA start date is input in cell I184 and associated flags are calculated in rows 186 and 187.
- A1.39 Cell I185 checks whether the ORA start date is at least ten years after the start of the regime.
- A1.40 The revised controllable Opex profile from the ORA submission is input in row 189⁵.
- A1.41 The value of the required adjustments to cap, notional floor and ACOD floor levels to reflect revised non-controllable Opex are calculated in the 'ORA Adjustment' sheet and imported into the 'Inputs' sheet, cells I191 to I193, for presentational purposes.
- A1.42 In sub-section **DC adjustment**, the input switch in cell I197 indicates whether DC adjustments to cap and floor levels to reflect revised decommissioning costs are to be applied or not.
- A1.43 In **Current DC adjustment**, the start date associated with the latest DC adjustment is input in cell I201 and the associated flag calculated in row 202.
- A1.44 The revised decommissioning costs profile from the latest DC submission is input in row 204.
- A1.45 The value of the required adjustments to cap and floor levels to reflect latest revised decommissioning costs are calculated in the 'DC Adjustment' sheet and imported into the 'Inputs' sheet, cells I206 to I208, for presentational purposes.
- A1.46 **Previous DC adjustments** summarises key information (date, values and flags) of any previous decommissioning adjustments (up to four). At any time when a DC adjustment is calculated through the GCFFM2, the associated information has to be hard-coded in 'Previous DC adjustments' in order to keep a record of the DC adjustments determined before the latest one.
- A1.47 Row 247 equals either zero or one depending on whether the cell above is, respectively, TRUE or FALSE; cell I247 then returns TRUE if all cells in row 246 return TRUE.

⁵ Refer to footnote 3 for an explanation of the difference between the approach to estimating operational costs in the CFFM1 and in the GCFFM2, and of how cost inputs in the CFFM1 need pro-rata's before they can be input into the GCFFM2.

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- A1.48 The 'Data Sources' sheet details the sources to all the inputs in the 'Inputs' sheet (yellow cells) and, where relevant, provides hyperlinks to these sources.
- A1.49 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.
- A1.50 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).

e. Costs & Revenue

- A1.51 Section **Costs** contains two sub-section, 'Baseline costs' and 'Costs items to be updated up to and beyond PCA stage (actual)'.
- A1.52 Sub-section **Baseline costs** imports baseline levels of decommissioning costs, controllable and non-controllable Opex from the 'Inputs' sheet into rows 11 to 13.
- A1.53 In sub-section **Costs items to be updated up to and beyond PCA stage (actual)**, actual levels of non-controllable Opex and non-controllable Opex adjustments following NRA review are imported from the 'Inputs' sheet into rows 17 and 23 respectively.
- A1.54 Where required (e.g. in case of dual currency project), the average annual exchange rate is imported from the 'Inputs' sheet into row 19.
- A1.55 Values in rows 17 and 19 are then used to convert actual non-controllable Opex from the currency in which costs are incurred (e.g. EUR) into the one in which cap and floor levels are set (GBP).
- A1.56 In the same way, where required, values in rows 23 and 25 are used to convert actual non-controllable Opex adjustments following NRA review from one currency (e.g. EUR) into another (GBP).
- A1.57 Section **Revenue** imports actual revenue from the 'Inputs' sheet into row 29 and then, in case of dual currency project, uses these values and those in row 19 to convert revenue from the currency in which revenue is earned (e.g. EUR) into the currency in which cap and floor levels are set (GBP).

f. ORA Adjustment

- A1.58 Section Controllable Opex contains three sub-sections:
- i) Original controllable Opex allowance from PCR stage;

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- ii) Revised controllable Opex allowance in ORA submission; and
- iii) NPV comparison.

- A1.59 In sub-section **Original controllable Opex allowance from PCR stage**, the original baseline controllable Opex profile that was used to set cap and floor levels at PCR stage is imported from the 'Inputs' sheet into row 11.
- A1.60 In sub-section **Revised controllable Opex allowance from ORA submission**, the revised controllable Opex profile determined following an ORA submission is imported from the 'Inputs' sheet into row 15.
- A1.61 Sub-section **NPV comparisons** calculates the difference between the NPV of the revised allowance and the NPV of the original allowance to determine the value of the required adjustments to the cap and floor levels. These NPVs are calculated only in relation to future years, i.e. not including any differences between actual and baseline Opex incurred in the years preceding the ORA submission.
- A1.62 The NPVs required to determine the value of the cap adjustment are calculated using the cap return rate as the discount factor; the NPVs required to determine the value of the floor adjustment are calculated using the floor return rate as the discount factor.
- A1.63 The cap and floor return rates are imported from the 'Inputs' sheet into cells I20 and I30 respectively, and used to calculate the discount factors in rows 21, 31 and 41 (for cap, notional floor and actual floor NPV calculations respectively).
- A1.64 The flags associated to the calculation of the ORA adjustments and their application to the cap, the notional floor and the actual floor are imported from the 'Inputs' sheet into rows 19, 29 and 39 respectively.
- A1.65 Cells I23 and I24 calculate, respectively, the NPV of the original allowance and the NPV of the revised allowance using the cost profiles in rows 11 and 15, the cap effective flags in row 19 and the cap discount factors in row 21; cell I25 calculates the difference between these two NPVs.
- A1.66 Cell I27 calculates the forward-looking ORA adjustment to the annual cap level (ORAC) that is required to reflect this difference.
- A1.67 Cells I33 and I34 calculate, respectively, the NPV of the original allowance and the NPV of the revised allowance using the cost profiles in rows 11 and 15, the floor effective flags in row 19 and the floor discount factors in row 21; cell I35 calculates the difference between these two NPVs.
- A1.68 Cell I37 calculates the forward-looking ORA adjustment to the annual notional floor level (ORANF) that is required to reflect this difference.

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A1.69 Rows 39 to 47 perform the same calculation for the actual floor, arriving at cell I47 with the forward-looking ORA adjustment to the annual actual floor level (ORAAF).

A1.70 Note that the ORAC, ORANF and ORAAF adjustments are calculated and applied to amend cap and floor levels from the ORA start date onwards; cap and floor levels before this date are not restated and, therefore, neither are any past payments to or from GB consumers.

g. DC Adjustment

A1.71 Section **Decommissioning costs** contains five sub-sections:

- i) Original decommissioning costs allowance from PCR stage;
- ii) Revised decommissioning costs allowance from latest DC submission;
- iii) All DCC adjustments (Cap);
- iv) All DCF adjustments (Floor); and
- v) NPV comparisons.

A1.72 In sub-section **Original decommissioning costs allowance from PCR stage**, the original baseline decommissioning costs profile that was used to set cap and floor levels at PCR stage is imported from the 'Inputs' sheet into row 11.

A1.73 In sub-section **Revised decommissioning costs allowance from latest DC submission**, the revised decommissioning costs profile requested through the latest DC submission is imported from the 'Inputs' sheet into row 15.

A1.74 Sub-section **Previous DCC adjustments (Cap)** imports from the 'Inputs' sheet the decommissioning costs adjustments to the cap level determined at any previous DC submissions (up to four) and activity flags associated with each adjustment.

A1.75 Cells I20, I24, I28 and I32 contain, respectively, the value of the first, second, third and fourth DCC adjustment to the cap (if these adjustments were requested); rows 21, 25, 29 and 33 contain the associated activity flags.

A1.76 Sub-section **Previous DCF adjustments (Floor)** imports from the 'Inputs' sheet decommissioning costs adjustments to the floor level determined at any previous DC submissions (up to four) and activity flags associated with each adjustment.

A1.77 Cells I38, I42, I46 and I50 contain, respectively, the value of the first, second, third and fourth DCF adjustment to the floor (if these adjustments were requested); rows 39, 43, 47 and 51 contain the associated activity flags.

A1.78 Sub-section **NPV comparisons** calculates the difference between the NPV of the latest revised allowance, the NPV of the original baseline allowance, and the

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NPVs of any previous DC adjustments to determine the value of the adjustment to the cap and notional and actual floor levels that is required to reflect the latest DC submission. At each DC adjustment, NPVs are calculated only in relation to future years, i.e. not including differences between actual and baseline decommissioning costs incurred in the years preceding the relevant DC submission.

- A1.79 The NPVs required to determine the value of the cap, notional floor and actual floor adjustments are calculated using discount factors of the cap return rate, the notional floor return rate, and the actual floor return rate respectively.
- A1.80 The cap, notional floor and actual floor return rates are imported from the 'Inputs' sheet into cells I56, I69 and I82 respectively, and used to calculate the discount factors in rows 57, 70 and 83.
- A1.81 The flag associated to the calculation of the latest DC adjustments and its application to the cap and the floor is imported from the 'Inputs' sheet into row 55.
- A1.82 Cell I59 calculates the NPV of the original allowance at the cap using the baseline cost profile in row 11 and the cap discount factors in row 57.
- A1.83 Cells I60 to I63 calculate the NPV of any previous DCC adjustment at the cap (up to four) from previous DC submissions using the four DCC adjustments in cells I20, I24, I28 and I32; the activity flags in rows 21, 25, 29 and 33; and the cap discount factors in row 57.
- A1.84 Cell I64 calculates the NPV of the latest revised allowance using the revised cost profile in row 15 and the cap discount factors in row 57.
- A1.85 Cell I65 calculates the difference between the NPV of the latest revised allowance at the cap, any previous DCC adjustments (up to four) and the NPV of the original baseline allowance at the cap.
- A1.86 Cell I67 calculates the forward-looking DCC adjustment to the annual cap level that is required to reflect this difference.
- A1.87 Cell I72 calculates the NPV of the original allowance at the notional floor using the baseline cost profile in row 11 and the floor discount factors in row 70.
- A1.88 Cells I73 to I76 calculate the NPV of any previous DCNF adjustment at the notional floor (up to four) from previous DC submissions using the four DCNF adjustments in cells I38, I42, I46 and I50; the activity flags in rows 39, 43, 47 and 51; and the notional floor discount factors in row 70.
- A1.89 Cell I77 calculates the NPV of the latest revised allowance at the notional floor using the revised cost profile in row 15 and the notional floor discount factors in row 70.

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- A1.90 Cell I78 calculates the difference between the NPV of the latest revised allowance at the notional floor, any previous DCNF adjustments (up to four) and the NPV of the original baseline allowance at the notional floor.
- A1.91 Cell I80 calculates the forward-looking DCNF adjustment to the annual notional floor level that is required to reflect this difference.
- A1.92 Rows 82 to 93 perform the same calculations for the actual floor, arriving at DCAF in cell I93.
- A1.93 Note that any DCC and DCF adjustments are calculated and applied to amend cap and floor levels from the relevant DC start date onwards; cap and floor levels before this date are not restated and, therefore, neither are any past payments to or from GB consumers.

h. Indexation

- A1.94 Section **Indexation** contains three sub-sections: 'Indexation factors', 'Partial year factors' and 'Indexed annuity (pre-availability incentive)'.
- A1.95 Sub-section **Indexation** imports inflation indexation factors from the 'Inputs' sheet into row 11, and indexation factors for Actual Floor debt service portion into row 12.
- A1.96 Sub-section **Partial year factors** imports partial year adjustment factors for the cap, floor, and floor debt service portion into rows 16, 17 and 18 respectively.
- A1.97 Sub-section **Indexed annuity (pre-availability incentive)** imports:
- i) Preliminary cap and floor levels set at FPA stage from the 'Inputs' sheet into cells I22 to I25;
 - ii) PCA adjustments used to set final cap and floor levels at PCR stage from the 'Inputs' sheet into cells I31 to I34;
 - iii) ORA adjustments to cap and floor levels (following ORA submission) from the 'Inputs' sheet (where they have to be hardcoded after having been calculated in the 'ORA Adjustment' sheet) into cells I35 to I37; and
 - iv) DC adjustments to cap and floor levels (following DC submissions) from the 'Inputs' sheet - (where they have to be hardcoded after having been calculated in the 'DC Adjustment' sheet) into cells I38 to I52.
- A1.98 Preliminary cap and floor levels (pre availability incentive and pre adjustments) are converted from real to nominal in rows 27 to 29 respectively, by applying the inflation indexation factors in rows 11 and 12 to the real terms annuity in cells I22 to I25.

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A1.99 The flags in cells I54, I58 and I62 are imported from the 'Inputs' sheet and determine, respectively, whether the PCA, ORA and DC adjustments are applied to the preliminary cap and floor levels.

A1.100 The PCA adjustment factors to be applied to preliminary cap and floor levels (PCAC, PCANF/PCAAF) to reflect changes required at PCR stage are imported from the 'Inputs' sheet into rows 55 and 56 respectively.

A1.101 Any ORA adjustment factors to be applied to preliminary cap and floor levels (ORAC and ORANF/ORAAF) to reflect changes following an ORA submission are imported from the 'Inputs' sheet into rows 59 and 60 respectively.

A1.102 Any DC adjustment factors to be applied to preliminary cap and floor levels (DCC and DCF adjustments use the same adjusting factor) to reflect changes following a DC submission are imported from the 'Inputs' sheet into row 63 and, if required, 64 to 67.

A1.103 Rows 69 to 71 calculate nominal pre-availability incentive cap, notional floor and actual floor levels, by adding nominal PCA, ORA and DC adjustments to nominal preliminary cap and floor levels (in rows 27 to 29).

A1.104 Each of these adjustments is calculated by applying to the relevant real terms adjustment (cells I31 to I34 and, if required, I35 to I52) the associated flag (I54, I58 and I62) and adjustment factors (rows 55-56, 59-60 and 63-67), and then the inflation indexation factors in rows 11 and 12.

A1.105 In summary, the pre-availability incentive cap and floor levels calculated in rows 69 to 71 are nominal (i.e. include RPI inflation indexation) and include all adjustments applied to the preliminary cap and floor levels set at FPA stage:

- i) The PCA adjustments to cap and floor levels (PCAC, PCANF and PCAAF) set at PCR stage;
- ii) Any ORA adjustments to the cap and floor levels (ORAC, ORANF and ORAAF) set following an ORA submission; and
- iii) Any DC adjustments to the cap and floor levels (DCC and DCF) set following a DC submission (up to five).

i. Availability

A1.106 Section **Availability incentives** contains five sub-sections:

- i) Cap and Floor (post-availability incentive);
- ii) Availability parameters;
- iii) Cap incentive rate;
- iv) Floor incentive rate (Notional & Actual); and

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v) Cap and Floor (post-availability incentive).

A1.107 Sub-section **Cap and Floor (pre-availability incentive)** imports nominal pre-availability incentive cap and floor levels from the 'Indexation' sheet into rows 11 to 13.

A1.108 Sub-section **Availability parameters** imports the number of operational years, the interconnector rated capacity and the number of hours in the relevant years from the 'Inputs' sheet into, respectively, cells I17, I20 and I21.

A1.109 Row 18 calculates a flag used to determine what years fall within the relevant 25-year operational period.

A1.110 Sub-section **Cap incentive rate** imports the cap availability incentive target and partial year cap adjustment factors from the 'Inputs' sheet into, respectively, cell I25 and row 26.

A1.111 The maximum possible availability in row 27 is calculated by multiplying the interconnector rate capacity in cell I20 by the number of hours in cell I21 and partial year cap adjustment factors in row 26.

A1.112 Row 28 imports the difference between total and allowed outages during active cap period from the 'Inputs' sheet.

A1.113 Row 29 calculates the actual availability at the cap as the difference between the maximum possible availability in row 27 and the outages in row 28.

A1.114 Row 30 calculates the availability target by multiplying the maximum possible availability in row 27 by the cap availability incentive target in cell I25.

A1.115 Row 31 calculates the availability performance at the cap for the relevant years (i.e. those in which the availability target is greater than zero) by dividing the actual availability at the cap in row 29 by the availability target in row 30.

A1.116 Cells I33 and I34 import, respectively, the upper and lower limit of the cap availability incentive from the 'Inputs' sheet (currently 1.02 and 0.98, to reflect a +/-2% incentive).

A1.117 Row 36 determines the cap availability incentive rate that is then exported to section 'Cap and Floor (post-availability incentive)' for all years in which the flag in row 18 is 'TRUE', based on the availability performance at the cap in row 31:

- i) If performance is above the upper limit in cell I33, the incentive rate is set equal to the upper limit (currently 1.02);
- ii) If performance is below the lower limit in cell I34, the incentive rate is set equal to the lower limit (currently 0.98); or
- iii) If performance is between upper and lower limit, the incentive rate is set equal to this level of performance.

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- A1.118 Sub-section **Floor incentive rate (Notional & Actual)** imports the floor availability incentive target and partial year floor adjustment factors from the 'Inputs' sheet into, respectively, cell I40 and row 41.
- A1.119 The maximum possible availability in row 42 is calculated by multiplying the interconnector rated capacity in cell I20 by the number of hours in cell I21 and partial year floor adjustment factors in row 41.
- A1.120 Row 43 imports the difference between total and allowed outages during active floor period from the 'Inputs' sheet.
- A1.121 Row 44 imports outages associated with exceptional events from the 'Inputs' sheet.
- A1.122 Row 45 calculates the actual availability at the floor by subtracting the outages in row 43 from the maximum possible availability in row 42 and adding back the outages associated with exceptional events in row 44.
- A1.123 Row 46 calculates the minimum availability target by multiplying the maximum possible availability in row 42 by the floor availability incentive target in cell I40.
- A1.124 Row 47 calculates the availability performance at the floor for the relevant years (i.e. those in which the minimum availability target is greater than zero) by dividing the actual availability at the floor in row 45 by the minimum availability target in row 46.
- A1.125 Row 49 imports the user-selected flag for utilisation of temporary financial support, with the associated scalar (less than or equal to 1) in row 50. Rows 51 and 52 import the status of outstanding temporary support in relation to the capped level of support, CAPOTSN and CAPOTSA, from the 'Assessment' sheet.
- A1.126 Rows 53 and 54 determine the floor availability incentive rate for the notional floor and actual floor respectively, which is then exported to sub-section 'Cap and Floor (post-availability incentive)' for all years in which the flag in row 17 is 'TRUE'.
- i) If performance is equal to or above one (i.e. if actual availability is equal to or above the minimum availability target), the incentive rate is set equal to one; or
 - ii) If performance is below one (i.e. if actual availability is equal to or above the minimum availability target), or if the CAPOTSA/CAPOTSN caps have been reached, then the incentive rate is set equal to zero.
- A1.127 In sub-section **Cap and Floor (post-availability incentive)**, rows 58 to 60 calculate post-availability incentive cap and floor levels by multiplying pre-

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availability incentive levels in rows 11 to 13 by, respectively, cap and floor availability incentive rates in rows 36, 53 and 54.

j. Assessment

A1.128 Section **Assessment** contains five sub-sections:

- i) Revenue assessment;
- ii) Repayment of Temporary Support Notional;
- iii) Repayment of Temporary Support Actual; and
- iv) Revenue adjustment for changes in non-controllable Opex.

A1.129 Section **Revenue assessment** determines the amount of any revenue adjustment required to address an excess above the cap or shortfall below the floor; it contains four sub-sections:

A1.130 NPV uplift factors;

A1.131 Revenue assessed for cap and floor;

A1.132 NPV of assessed revenue for cap and floor; and

A1.133 Assessed adjustment.

A1.134 Sub-section **NPV uplift factors** imports the inflation index and the real operational discount rate from the 'Inputs' sheet into rows 11 13 respectively.

A1.135 Row 12 calculates the year-on-year change in the inflation index based on the index values in row 11.

A1.136 Rows 15 to 19 calculate the annual uplift factors that are required to uplift cap and floor levels and revenue from the relevant year in which they occur to the year in which the revenue assessment against cap and floor takes place, so that this assessment can be carried out on an NPV-neutral basis.

A1.137 These calculations are built to allow the revenue assessment to be carried out either at the end of each relevant assessment period (default length of 5 years) or more frequently, if needed.

A1.138 The following table exemplifies how this NPV-neutral assessment is carried out.

	Year 1	Year 2	Year 3	Year 4	Year 5
Five-year uplift factor	0.00	0.00	0.00	0.00	1.32

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	Year 1	Year 2	Year 3	Year 4	Year 5
Four-year uplift factor	0.00	0.00	0.00	1.23	1.23
Three-year uplift factor	0.00	0.00	1.15	1.15	1.15
Two-year uplift factor	0.00	1.07	1.07	1.07	1.07
One-year uplift factor	1.00	1.00	1.00	1.00	1.00

A1.139 Using the illustrative figures above⁶, if the assessment is carried out at the end of year 1, there is only one year of revenue, which does not need to be uplifted; therefore:

- i) The one-year uplift factor applied to this revenue is equal to 1.00; and
- ii) The other uplift factors are equal to zero.

A1.140 If the assessment is carried out at the end on year 2, there are two years of revenue: the first needs to be uplifted from year 1 to year 2, while the second does not need to be uplifted; therefore:

- i) The two-year uplift factor applied to revenue earned in year 1 is equal to 1.07, which is calculated as 1 plus the discount rate in year 2;
- ii) The one-year uplift factor applied to revenue earned in year 2 is equal to 1.00, and
- iii) The other uplift factors are equal to zero.

A1.141 The same approach is repeated if the assessment is carried out in year 3, 4 or 5.

A1.142 If the assessment is carried out at the end of year 5 (default assessment period), there are five years of revenue, with each year needing to be uplifted from the year in which it occurs to year 5; therefore:

- i) The five-year uplift factor applied to revenue earned in year 1 is equal to 1.32, which is calculated as (1 plus the discount rate in year 2) multiplied by (1 plus the discount rate in year 3) multiplied by (1 plus the discount rate in year 4) multiplied by (1 plus the discount rate in year 5);

⁶ The actual uplift factors used for individual projects will differ between projects depending on the specific inflation assumption applied to the real discount rate to determine the nominal discount rate that is used to calculate the uplift factors.

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- ii) The four-year uplift factor applied to revenue earned in year 2 is equal to 1.23, which is calculated using the approach described in the point above;
- iii) The three-year uplift factor applied to revenue earned in year 3 is equal to 1.15;
- iv) The four-year uplift factor applied to revenue earned in year 4 is equal to 1.23; and
- v) The one-year uplift factor applied to revenue earned in year 5 is equal to 1.0.

A1.143 Sub-section **Revenue assessed for cap and floor** imports assessed revenue from the 'Revenue' sheet into row 23, notional floor pre-availability incentive (called notional floor for the purpose of the calculations in this sheet) and notional floor post-availability incentive from the 'Availability' sheet into rows 24 and 25. Corresponding actual floor pre- and post-availability incentive assessed revenue rows are imported into rows 26 and 27.

A1.144 Row 29 calculates notional floor surplus assessed revenue based on the floor post-availability incentive in row 25; if this is zero (because availability is below the minimum availability threshold), then the surplus is equal to assessed revenue minus the notional floor; if floor post-availability incentive is bigger than zero (because availability is at or above the minimum availability threshold), then the surplus is equal to zero. Row 30 calculates surplus-only assessed revenue by replacing any values less than zero with zero. Rows 31 and 32 perform the same calculations for actual floor assessed revenue.

A1.145 Row 34 imports cap (post-availability incentive) from the 'Availability' sheet.

A1.146 Row 35 sets revenue assessed for cap equal to assessed revenue in row 23.

A1.147 Row 36 displays notional floor (post-availability incentive) previously imported from the 'Availability' sheet into row 25. Row 37 displays the equivalent for actual floor.

A1.148 Row 39 sets revenue assessed for the notional floor based on floor post-availability incentive in row 25; if this is zero, then revenue assessed for the floor is equal to surplus assessed revenue in row 30; otherwise, revenue assessed for the floor is equal to assessed revenue in row 23.

A1.149 Row 40 sets revenue assessed for the actual floor based on floor post-availability incentive in row 27; if this is zero, then revenue assessed for the floor is equal to surplus assessed revenue in row 32; otherwise, revenue assessed for the floor is equal to assessed revenue in row 23.

A1.150 Sub-section **NPV of assessed revenue for cap and floor** calculates NPVs of:

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- i) Cap (post-availability incentive) in row 44, based on the cap values in row 34 and uplift factors in rows 15 to 19;
- ii) Revenue assessed for cap in row 45, based on revenue values in row 35 and uplift factors in rows 15 to 19;
- iii) Notional Floor (post-availability incentive) in row 46, based on floor value in row 36 and uplift factors in rows 15 to 19;
- iv) Actual Floor (post-availability incentive) in row 47, based on floor value in row 37 and uplift factors in rows 15 to 19;
- v) Revenue assessed for notional floor in row 48, based on revenue values in row 39 and uplift factors in rows 15 to 19; and
- vi) Revenue assessed for actual floor in row 49, based on adjustment values in row 40 and uplift factors in rows 15 to 19.

A1.151 These NPVs are calculated using the NPV-neutral approach explained under sub-section 'NPV uplift factors' above.

A1.152 Sub-section **Assessed adjustment** establishes the end of period acp and floor revenue adjustment amounts for the notional and the actual floors (CNFA and CAFA). Rows 53 to 57 are common to both types of floor. Cell I53 imports assessment period length from the 'Inputs' sheet and calculates assessment year flags in row 54 based on assessment period length in cell I53 and operational year numbers in row 5.

A1.153 Row 56 calculates relevant revenue at cap as the difference between the NPV of revenue assessed for cap (in row 45) and the NPV of cap post-availability incentive (in row 44).

A1.154 Row 57 sets revenue excess at cap equal to relevant revenue at cap in row 56 if this is greater than zero, or equal to zero otherwise; therefore, if there is revenue excess at the cap, this is indicated with a positive value in row 57.

A1.155 For the notional floor, row 59 calculates relevant revenue at floor for the purposes of deriving revenue excess at notional floor as the difference between the NPV of floor post-availability incentive (in row 46) and the NPV of revenue assessed for floor (in row 48). The revenue excess at notional floor is then calculated in row 61 using row 59's values, showing a value if revenue excess is greater than zero. Row 60 calculates relevant revenue at notional floor for the purposes of deriving revenue shortfall at notional floor, and the relevant shortfall at notional floor is then calculated in row 62 using row 60's value. Similarly, a value is shown if revenue shortfall is greater than zero.

A1.156 The calculations are repeated for the actual floor in rows 64 to 67.

A1.157 Row 69 calculates a cap and floor revenue adjustment that does not account for when the relevant year lies within the assessment period, i.e. it

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produces a revenue adjustment value for each year, irrespective of whether the year is the final year of the relevant assessment period (i.e. year 5, if the default 5-year assessment period is used).

A1.158 The revenue adjustment in row 69 is calculated based on revenue excess at cap (in row 57) and revenue shortfall at floor (in row 62), as follows:

- i) If revenue excess at cap is larger than zero, then the revenue adjustment is set equal to the negative of revenue excess at cap minus the NPV of the within-period adjustment;
- ii) If revenue excess at cap is equal to zero and revenue shortfall at floor is larger than zero, then the revenue adjustment is set equal to revenue shortfall at floor minus the NPV of the within-period adjustment; or
- iii) If both revenue excess at cap and revenue shortfall at floor are equal to zero, then the revenue adjustment is set equal to the negative of the NPV of the within-period adjustment.

A1.159 A positive revenue adjustment indicates that revenue is adjusted upwards (i.e. revenue has to be topped up by consumers); a negative revenue adjustment indicates that revenue is adjusted downwards (i.e. excess revenue has to be transferred to consumers).

A1.160 Row 72 determines the end of period cap and floor revenue adjustment by applying the revenue adjustment calculated in row 69 only to those years for which the assessment year flag in row 54 is 'TRUE', i.e. only for the final year of each assessment period (e.g. in the case of the default 5-year period, years 5, 10, 15, 20 and 25).

A1.161 The equivalent calculations for the actual floor are carried out in rows 64 to 67, row 70 and row 73.

A1.162 Section **Temporary Support Notional** tracks the utilisation of temporary support and its subsequent repayment.

A1.163 Sub-section **Calculation of Temporary Support Notional** makes use of the following information: availability performance at floor (row 79, from Availability P47); availability incentive adjustment at notional floor (row 80, from Availability P53); and CAPOTSN cap (row 82), which is calculated as notional floor pre-availability incentive (row 24) multiplied by the CAPOTSA/CAPOTSN cap multiple input.

A1.164 Temporary support notional (row 84) is equal to revenue shortfall at notional floor (row 62) as long as the following conditions are met: revenue excess at cap is 0; availability performance at floor is less than 1, availability incentive adjustment at notional floor is less than or equal to 1, and revenue shortfall at notional floor is greater than 0.

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- A1.165 Row 85 calculates the temporary support notional after considering the CAPOTSN cap. This value is equal to the lesser of temporary support notional, or remaining headroom between the CAPOTSN cap and outstanding temporary support notional opening balance (net of uplifted new support or repayments made in the previous period). This calculation ensures that temporary support provided in any given period does not cause the outstanding balance by the end of the year to exceed the CAPOTSN cap.
- A1.166 Row 86 indicates if the CAPOTSN threshold was reached in the prior period. It is calculated as the sum of temporary support notional post CAPOTSN limitation (row 85), outstanding temporary support notional opening balance (net of uplifted new support or repayments made in the previous period) (rows 90 and 91), and new support or repayments in the current period (rows 92 to 94). The value of the cell is 1 if this sum exceeds the CAPOTSN cap, and this value is fed back into the Availability sheet to switch off availability incentive adjustment at notional floor (row 53). Because the CAPOTSN threshold flag calculation operates on the prior period values, this means that if the threshold is reached in the prior period, then from the current period onwards availability incentive will be switched to 0 and no further floor payments or temporary support will be available.
- A1.167 Sub-section **Repayment of Temporary Support Notional** tracks the balance of outstanding temporary support before equity distribution notional. Rows 90, 95 and 91 calculate the opening balance, closing balance, and uplifts to new support or repayments made in the previous period. Repayment of temporary support notional (row 92) is calculated as the lesser of either revenue excess at notional floor minus revenue excess at cap; or outstanding temporary support. Extra repayment of temporary support notional (row 93) is imported from the Input sheet (row 125). Temporary support is drawn from prior calculation in row 84. Repayment figures appear as negative within this sub-section.
- A1.168 Section **Temporary Support Actual** uses the same inputs, logic and structure as the Repayment of Temporary Support Notional section. The exception to this is the sub-section Calculation of difference between Actual and Notional Floor to be repaid. The difference between the actual and notional floor levels is added into the outstanding temporary support actual balance in periods where: assessed revenue is below the actual floor; availability performance at floor is equal to or greater than 1; and the actual floor is greater than the notional floor level.
- A1.169 The difference between notional floor (pre-availability incentive) (row 112) and actual floor (pre-availability incentive) (row 113) is calculated in row 114, with a 0 being returned if actual floor is less than or equal to notional floor. The difference between this result and revenue shortfall at actual floor (row 115) is

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calculated in row 116, with a 0 being returned if availability performance at floor is less than 1.

- A1.170 In the **Repayment of Temporary Support Actual**'s calculation of outstanding temporary support actual, an extra row is added in for the Difference between Actual Floor and Notional Floor to be repaid (row 125), which is added to the Outstanding Temporary Support Before Equity Distribution Actual (row 126).
- A1.171 Section **Revenue adjustment for changes in non-controllable Opex** determines the amount of any revenue adjustment required to address a difference between baseline and actual non controllable Opex.
- A1.172 Row 130 imports nominal actual non-controllable Opex from the 'Costs & Revenue' sheet.
- A1.173 Rows 131 imports real baseline non-controllable Opex from the 'Costs & Revenue' sheet and multiplies it by the inflation index in row 11 to inflate it from real to nominal.
- A1.174 Rows 132 calculates the difference between actual and baseline non-controllable Opex, both expressed in nominal terms.
- A1.175 Row 134 imports adjustments to non-controllable Opex following NRA review from the 'Costs & Revenue' sheet.
- A1.176 Row 136 calculates total non-controllable change from baseline as the sum of the difference between actual and baseline non-controllable Opex in row 132 and the adjustments following NRA review in row 134.
- A1.177 Row 138 calculates a pass-through revenue adjustment using the same NPV uplifts as detailed above that does not account for when the relevant year lies within the assessment period, i.e. it produces a revenue adjustment value for each year, irrespective of whether the year is the final year of the relevant assessment period (i.e. year 5, if the default 5-year assessment period is used).
- A1.178 A positive revenue adjustment indicates that revenue is adjusted upwards (i.e. revenue has to be topped up by consumers); a negative revenue adjustment indicates that revenue is adjusted downwards (i.e. excess revenue has to be transferred to consumers).
- A1.179 Row 140 determines the end of period pass-through revenue adjustment by applying the revenue adjustment calculated in row 138 only to those years for which the assessment year flag in row 54 is 'TRUE', i.e. only for the final year of each assessment period (e.g. in the case of the default 5-year period, years 5, 10, 15, 20 and 25)
- A1.180 Section **Calculation of ICF (Notional & Actual)** calculates the interconnector cap and floor adjustment terms (ICF) for the notional and actual

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floor, before final apportionment to GB consumers. ICF for the notional floor (pre-TRU adjustment) (row 144) is calculated as the sum of end of period pass-through adjustment (row 140), repayment of temporary support notional (row 92), extra repayment of temporary support notional (row 93), and the end of period cap and floor revenue adjustment (row 72) minus temporary support notional (row 84) plus temporary support notional (post CAPOTSN limitation) (row 85). This final step allows any floor support in the end of period cap and floor revenue adjustment (row 72) to be masked to 0 the CAPOTSN cap has been reached.

A1.181 A matching calculation is made for ICF for the actual floor (pre-TRU adjustment) in row 145.

A1.182 The TRU term is imported into row 147 from Inputs row 117. This is then added to the ICF (pre-TRU adjustment) values to derive ICF (post-TRU adjustment) for notional floor and actual floor in rows 149 and 150.

k. Revenue Adjustment

A1.183 Section **Model outputs** has two sub-sections: 'Cap and Floor levels' and 'Amounts due to or from GB consumers'.

A1.184 Sub-section **Cap and Floor levels** imports cap and notional floor and actual floor levels post-availability incentive from the 'Availability' sheet into rows 11, 12 and 13 respectively.

A1.185 In sub-section **Amounts due to or from GB consumers**, cell I17 imports from the 'Inputs' sheet the percentage identifying the GB share of the interconnector (and therefore the share of any payments to the interconnector from GB consumers or payments from the interconnectors to GB consumers).

A1.186 Rows 19 multiplies the sum of end of period cap and notional floor revenue adjustment and end of period pass-through revenue adjustment (both imported from the 'Assessment sheet') by the GB consumer share in cell I17 to determine the total amount due from the interconnector to GB consumers (if the value is negative) or to the interconnector from GB consumers (if the value is positive) at the end of each relevant assessment period (i.e. at 5-year intervals for the default assessment period). Row 20 performs the same calculation to determine the end of period cap and actual floor revenue adjustment.

A1.187 Rows 22 and 23 display the balance of outstanding temporary support before equity distribution for the notional and actual floor.

l. Revenue Adjustment

A1.188 Section **Flags describing project situation** has two sub-sections: 'Key operating parameters' and 'Outcomes'.

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- A1.189 Sub-section **Key operating parameters** uses TRUE and FALSE flags to describe the status of revenues in a given year with respect to the cap and floor levels. Other parameters also include whether Outstanding Temporary Support capped limits have been reached, and whether Temporary Support has been requested.
- A1.190 Sub-section **Outcomes** follows the subsequent implications of the key operating parameters for revenue top-ups, temporary support provision, and repayments.
- A1.191 Section **ICF check** re-states the constituent elements of the ICF term and checks this against the live model figure in the Assessment sheet (row 144 for notional floor and row 145 for actual floor)..