



CMP306:

Align annual connection charge rate of return at CUSC 14.3.21 to price control cost of capital

01	Proposal Form
02	Workgroup Consultation
03	Workgroup Report
04	Code Administrator Consultation
05	Draft CUSC Modification Report
06	Final CUSC Modification Report

Purpose of Modification: The purpose of this modification is to align the rate of return applied to the net asset value of connection points in the calculation of annual connection charges (as set out at paragraph 14.3.21 of the Connection Charging Methodology) to the pre-tax cost of capital in the price control of the Relevant Transmission Licensee (plus a margin of 1.5 percentage points in the case of MEA-linked assets). This will improve the cost reflectivity of the charges, since the return on capital will equal the Authority’s most recent assessment of that cost for the Relevant Transmission Licensee.

	<p>This document contains the discussion of the Workgroup which formed in December 2018 to develop and assess the proposal. Any interested party is able to make a response in line with the guidance set out in Section 6 of this document.</p> <p>Published on: 15 April 2019</p> <p>Length of Consultation: 20 Working days</p> <p>Responses by: 16 May 2019</p>
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	<p>High Impact: Chargeable Users under the Connection Charging Methodology and transmission licensees.</p>
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Timetable

The Code Administrator recommends the following timetable:

Initial consideration by Workgroup	December 2018
Workgroup Consultation issued to the Industry	April 2019
Modification concluded by Workgroup	14 June 2019
Workgroup Report presented to Panel	28 June 2019
Code Administration Consultation Report issued to the Industry	July 2019
Draft Final Modification Report presented to Panel	30 August 2019
Modification Panel decision	30 August 2019
Final Modification Report issued the Authority	16 September 2019
Decision implemented in CUSC	1 April 2020



Any questions?

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1 About this document

This report contains the discussion of the Workgroup which formed in December 2018 to develop and assess the proposal.

Section 2 (Original Proposal) and Section 3 (Proposer's solution) are sourced directly from the Proposer and any statements or assertions have not been altered or substantiated/supported or refuted by the Workgroup. Section 5 (Workgroup Discussions) contains the discussion by the Workgroup on the Proposal and the potential solution.

The CUSC Panel detailed in the Terms of Reference (ToR) the scope of work for the CMP306 Workgroup and the specific areas that the Workgroup should consider.

The table below details these specific areas and where the Workgroup have covered them or will cover post Workgroup Consultation.

The full Terms of Reference can be found in Annex 1.

Table 1: CMP306 ToR

Specific Area	Location in the report
a) Whether there are any other parts of the Code which are currently out of date in terms of Connection Assets	Section 5 Page 12
b) Consideration of ongoing RPI/MEA reporting moving forwards in regards to MEA uplift.	Section 5 Page 11
c) Consideration as to how practical information and data flows are published by Transmission Owners, e.g. various costs of capital in financial control models.	Section 5 Page 11
d) Clarify how the transmission licenses work in regards to connection and transmission revenues.	Section 5 Page 6-9

2 Summary

Section 2 (Original Proposal) is sourced directly from the Proposer and any statements or assertions have not been altered or substantiated/supported or refuted by the Workgroup. Section 5 of the Workgroup Report contains the discussion by the Workgroup on the Proposal and the potential solution.

Defect

Paragraph 14.3.21 of the current CUSC Connection Charging Methodology calculates the capital component of the annual connection charge by applying an out of date return element of 6% for assets indexed using the Retail Price Indices (RPI), or 7.5% for assets under the Modern Equivalent Asset (MEA) revaluation.

As set out at transmission standard licence condition C6.8, the connection charging methodology should allow the Relevant Transmission Licensee to recover (a) its costs of carrying out any works and (b) a reasonable rate of return on the capital represented by such costs. In effect, the charges should be cost-reflective. The current 6% RPI linked return was previously a reasonable assessment of the cost of capital of the Relevant Transmission Licensee, as it was aligned with a price control assessment of the cost of capital. However, the figure has not been updated to reflect the latest cost of capital determinations by the Authority. The 6% figure for an RPI linked return is therefore no longer reflective of the cost of capital of the Relevant Transmission Licensee, and is therefore no longer a reasonable rate of return on the costs incurred by the Relevant Transmission Licensee.

This proposal only relates to underlying cost of capital used in calculating the appropriate rate of return. It does not consider the appropriate difference between the return on RPI-linked and MEA-linked assets (which is currently set at 1.5 percentage points).

What

It is proposed to amend the calculation of the capital components of the annual connection charges, by defining the rate of return applied to RPI-linked assets as the pre-tax cost of capital determined in the price control in force in the relevant year, and for MEA linked assets as the same value plus 1.5 percentage points.

Why

Paragraph 14.2.1 states that connection charges enable the Relevant Transmission Licensee to recover the costs involved in providing the assets to connect to the transmission system with a 'reasonable rate of return'. As highlighted in the 'defect' the long-standing rates of return are not currently linked to the cost of capital the Authority has determined for the Relevant Transmission Licensee in its price control settlement, and whilst the cost of capital has declined the calculation of the charges has remained linked to a 6% return (and 7.5% for MEA-linked assets). Aligning the rate of return in the charging methodology to the pre-tax cost of capital in the price control settlement in force at any given time would ensure that the annual connection charges levied by the Relevant Transmission Licensee reflect Ofgem's latest view of a reasonable rate of return for that Relevant Transmission Licensee. This will result in a more cost reflective charges to Users.

How

References to the rate of return in Section 14 Part 1 of the CUSC ('The Statement of the Connection Charging Methodology') should be amended to define the rate as the pre-tax cost of capital determined in the relevant price control, plus 1.5 percentage points for assets under the MEA revaluation method.

3 Why Change?

Under the existing arrangements, the Relevant Transmission Licensee sets its annual charges for connection to the transmission network to include a rate of return which is no longer reflective of the latest cost of capital determined in its price control settlement by Ofgem.

By adjusting the rate of return so it equals the cost of capital in the latest price control determination, the charges of the Relevant Transmission Licensee on Users will be more cost reflective. This greater cost reflectivity will flow through to charges ultimately levied on end users.

Failure to address this issue will result in a continued disconnect between the rate of return reflected in connection charges levied by the Relevant Transmission Licensee and the cost of capital of that Relevant Transmission Licensee as determined by the Authority. This would result in a continued (and, based on current trends in the allowed cost of debt, growing) lack of cost reflectivity in the annual connection charges.

4 Solution

Section 3 (Proposer's solution) is sourced directly from the Proposer and any statements or assertions have not been altered or substantiated/supported or refuted by the Workgroup. Section 5 of the Workgroup Report contains the discussion by the Workgroup on the Proposal and the potential solution.

The Authority undertakes an extensive assessment of the evidence on the relevant cost of capital, and thus a reasonable rate of return, at each price control review. The cost of capital may then be updated within the price control period according to a pre-set indexation formula. The results of this assessment (and any indexation formula) therefore form an ideal input to the calculation of a reasonable rate of return on capital as part of annual connection charges.

References to the rate of return in paragraph 14.3.21 of the CUSC ('The Statement of the Connection Charging Methodology') should be amended to define the rate as the pre-tax cost of capital determined in the relevant price control of the Relevant Transmission Licensee, plus 1.5 percentage points for assets under the MEA revaluation method.

All references to the 6% and 7.5% figures should be removed accordingly. The relevant legal text and suggested amendments are proposed in section 10 of this form.

5 Workgroup Discussions

The Workgroup convened 3 times between December 2018 and March 2019 to discuss the perceived issue, detail the scope of the proposed defect, devise potential solutions and assess the proposal in terms of the Applicable CUSC Objectives. The Workgroup will in due course conclude these tasks after this consultation (taking account of responses to this consultation).

The Workgroup discussed several key attributes under CMP306 and these discussions are described below.

How to calculate the pre-tax Cost of Capital (COC)

The Proposer explained that the pre-tax Cost of Capital¹ calculation is documented within Section 10 of this report. The following inputs: Cost of Debt (COD), Cost of Equity (COE), Notional Gearing and Corporation Tax will be taken from the latest Price Control Financial Model (PCFM)². This is published by Ofgem on the 30th November each year following the Annual Iteration Process (AIP).

The Proposer highlighted that there were different ways to calculate the rate of return (RoR) and CMP306 is proposing that they use the pre-tax Weighted Average Cost of Capital (WACC). The Proposer demonstrated how this would be calculated for each TO and highlighted the source of the inputs. These calculations along with supporting commentary can be found in full within Annex 2 of this report.

Table 1: Rate of Return NGETO

NGET TO	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	(e.g what 20/21 could look like)	Notes
CoD	2.92%	2.72%	2.55%	2.38%	2.22%	1.91%	1.58%	1.58%	A	The TOs 'real' pre-tax cost of debt sourced from row 38 of the relevant TO worksheet within Ofgem's RIIO-ET1 Price Control Financial Model (PCFM)
CoE	7.00%	7.00%	7.00%	7.00%	7.00%	7.00%	7.00%	7.00%	B	The TOs 'real' post-tax cost of equity sourced from row 39 of the relevant TO worksheet within Ofgem's RIIO-ET1 PCFM
Gearing	60.00%	60.00%	60.00%	60.00%	60.00%	60.00%	60.00%	60.00%	C	The TOs notional gearing (i.e. percentage of the TOs regulatory asset value (RAV) which is notional debt) sourced from row 40 of the relevant TO worksheet within Ofgem's RIIO-ET1 PCFM
WACC	4.552%	4.432%	4.330%	4.228%	4.132%	3.946%	3.748%	3.748%	$D = (Ax)C + (Bx)(1-C)$	The 'real' Vanilla Weighted Average Cost of Capital (WACC) calculated as a weighted percentage of debt/equity relative to the notional percentage of RAV which is debt/equity
Tax	20.00%	20.00%	20.00%	20.00%	19.00%	19.00%	19.00%	17.00%	E	The corporation tax rate set by HMRC and sourced from row 120 of the Tax Trigger sheet for the relevant TO within Ofgem's RIIO-ET1 Price Control Financial Model (PCFM)
pre-tax WACC	5.252%	5.132%	5.030%	4.928%	4.789%	4.603%	4.405%	4.321%	$F = (Ax)C + ((B/(1-E)) * (1-C))$	The 'real' pre-tax WACC calculated in the same way as the Vanilla WACC other than the post-tax cost of equity is converted to a pre-tax basis using the relevant corporation tax rate
RPI return	5.25%	5.13%	5.03%	4.93%	4.79%	4.60%	4.40%	4.32%	$G = \text{ROUND}(F, 2)$	For simplicity and consistent, the pre-tax WACC is rounded to two decimal places. This is the figure that will be used to replace the current 6%
MEA delta	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	H	CMP 306 proposes to retain the 1.5 percentage points differential between the rate of return applied to Modern Equivalent Asset (MEA) valued assets compared to those inflated using the Retail Price Indices (RPI)
MEA return	6.75%	6.63%	6.53%	6.43%	6.29%	6.10%	5.90%	5.82%	$I = G + H$	

¹ Also, referred to as the Rate of Return

² <https://www.ofgem.gov.uk/publications-and-updates/riio-et1-financial-model-following-annual-iteration-process-2018>

Table 2: Rate of Return SPTL

SPTL	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	(e.g what 20/21 could look like)	Notes
CoD	2.92%	2.72%	2.55%	2.38%	2.22%	1.91%	1.58%	1.58%	A	The TOs 'real' pre-tax cost of debt sourced from row 38 of the relevant TO worksheet within Ofgem's RIIO-ET1 Price Control Financial Model (PCFM)
CoE	7.00%	7.00%	7.00%	7.00%	7.00%	7.00%	7.00%	7.00%	B	The TOs 'real' post-tax cost of equity sourced from row 39 of the relevant TO worksheet within Ofgem's RIIO-ET1 PCFM
Gearing	55.00%	55.00%	55.00%	55.00%	55.00%	55.00%	55.00%	55.00%	C	The TOs notional gearing (i.e. percentage of the TOs regulatory asset value (RAV) which is notional debt) sourced from row 40 of the relevant TO worksheet within Ofgem's RIIO-ET1 PCFM
WACC	4.756%	4.646%	4.553%	4.459%	4.371%	4.201%	4.019%	4.019%	D = (AxC)+(Bx(1-C))	The 'real' Vanilla Weighted Average Cost of Capital (WACC) calculated as a weighted percentage of debt/equity relative to the notional percentage of RAV which is debt/equity
Tax	20.00%	20.00%	20.00%	20.00%	19.00%	19.00%	19.00%	17.00%	E	The corporation tax rate set by HMRC and sourced from row 120 of the Tax Trigger sheet for the relevant TO within Ofgem's RIIO-ET1 Price Control Financial Model (PCFM)
pre-tax WACC	5.544%	5.434%	5.340%	5.247%	5.110%	4.939%	4.758%	4.664%	F = (AxC)+((B/(1-E))*(1-C))	The 'real' pre-tax WACC calculated in the same way as the Vanilla WACC other than the post-tax cost of equity is converted to a pre-tax basis using the relevant corporation tax rate
RPI return	5.54%	5.43%	5.34%	5.25%	5.11%	4.94%	4.76%	4.66%	G = ROUND(F,2)	For simplicity and consistent, the pre-tax WACC is rounded to two decimal places. This is the figure that will be used to replace the current 6%
MEA delta	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	H	CMP 306 proposes to retain the 1.5 percentage points differential between the rate of return applied to Modern Equivalent Asset (MEA) valued assets compared to those inflated using the Retail Price Indices (RPI)
MEA return	7.04%	6.93%	6.84%	6.75%	6.61%	6.44%	6.26%	6.16%	I = G+H	

Table 3: Rate of Return SHE

SHE	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	(e.g what 20/21 could look like)	Notes
CoD	2.92%	2.50%	2.15%	1.79%	1.51%	1.16%	1.00%	1.00%	A	The TOs 'real' pre-tax cost of debt sourced from row 38 of the relevant TO worksheet within Ofgem's RIIO-ET1 Price Control Financial Model (PCFM)
CoE	7.00%	7.00%	7.00%	7.00%	7.00%	7.00%	7.00%	7.00%	B	The TOs 'real' post-tax cost of equity sourced from row 39 of the relevant TO worksheet within Ofgem's RIIO-ET1 PCFM
Gearing	55.00%	55.00%	55.00%	55.00%	55.00%	55.00%	55.00%	55.00%	C	The TOs notional gearing (i.e. percentage of the TOs regulatory asset value (RAV) which is notional debt) sourced from row 40 of the relevant TO worksheet within Ofgem's RIIO-ET1 PCFM
WACC	4.76%	4.53%	4.33%	4.13%	3.98%	3.79%	3.70%	3.70%	D = (AxC)+(Bx(1-C))	The 'real' Vanilla Weighted Average Cost of Capital (WACC) calculated as a weighted percentage of debt/equity relative to the notional percentage of RAV which is debt/equity
Tax	20.00%	20.00%	20.00%	20.00%	19.00%	19.00%	19.00%	17.00%	E	The corporation tax rate set by HMRC and sourced from row 120 of the Tax Trigger sheet for the relevant TO within Ofgem's RIIO-ET1 Price Control Financial Model (PCFM)
pre-tax WACC	5.54%	5.31%	5.12%	4.92%	4.72%	4.53%	4.44%	4.35%	F = (AxC)+((B/(1-E))*(1-C))	The 'real' pre-tax WACC calculated in the same way as the Vanilla WACC other than the post-tax cost of equity is converted to a pre-tax basis using the relevant corporation tax rate
RPI return	5.54%	5.31%	5.12%	4.92%	4.72%	4.53%	4.44%	4.35%	G = ROUND(F,2)	For simplicity and consistent, the pre-tax WACC is rounded to two decimal places. This is the figure that will be used to replace the current 6%
MEA delta	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	H	CMP 306 proposes to retain the 1.5 percentage points differential between the rate of return applied to Modern Equivalent Asset (MEA) valued assets compared to those inflated using the Retail Price Indices (RPI)
MEA return	7.04%	6.81%	6.62%	6.42%	6.22%	6.03%	5.94%	5.85%	I = G+H	

Introduction of regional differences in TO connection charges

The Proposer recognised that whilst they were trying to make the connection charge more cost reflective each transmission licensee will have different inputs into their calculation of the pre-tax WACC, which could result in regional differences in TO connection charges that do not currently exist.

The Workgroup compared the figures against the current baseline (6%) and each TO. One view within the Workgroup was that the percentage difference between each TO appeared to be relatively small, but if it were to be applied to a customer with a large number of assets the difference between having a connection in England/Wales and Scotland could become quite significant and detrimental.

The NGESO representative stated that he would need to discuss this with other TOs to see if they were happy with this approach or if they wanted to raise any alternatives. Following discussions with the affected onshore TOs, the NGESO representative confirmed to the Workgroup that the proposed methodology is acceptable to the affected on-shore TOs.

The Workgroup discussed whether they should use a single national average across the TOs instead of a methodology that results in regional variances.

The Proposer calculated the average pre-tax WACC across the three TOs (NGET, SPTL and SHE). The Workgroup noted that over the 8-year period the average (mean) rate of return was not significantly different to that of each TO. The average difference between the collective TOs minimum and maximum RPI Return was 0.34%.

Table 4: Average rate of return across the TOs

	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21
Min	5.25%	5.13%	5.03%	4.92%	4.72%	4.53%	4.40%	4.32%
Max	5.54%	5.43%	5.34%	5.25%	5.11%	4.94%	4.76%	4.66%
Min v Max	0.29%	0.30%	0.31%	0.33%	0.39%	0.41%	0.36%	0.34%
Average (mean)	5.44%	5.29%	5.16%	5.03%	4.87%	4.69%	4.53%	4.44%

The Proposer highlighted that he did not have a view of what the difference between TO-specific and average translated to in financial terms but use of a TO average did not go against what CMP306 was trying to achieve. The Workgroup would need to decide if it wanted to go with simplicity (i.e. one figure for all TOs) and use the average or go down the route of more cost reflective charging and introduce regional differences.

The NGESO representative stated that whilst the regional differences are very small they would prefer to go down the route of TO specific pre-tax WACC. This is because the ESO would otherwise have to carry the risk of calculating a weighted average, as they would not be able to use the mean and so using TO specific WACC values, would be easier to administer than an average WACC across TOs.

Before finalising the solution, the Workgroup thought it would be beneficial to obtain Ofgem's views on whether CMP306 should be introducing regional differences into TO connection charges. They did not want to waste any further time developing this solution if Ofgem were completely unsupportive of it, or if it brought the modification within the scope of a Significant Code Review (SCR).

The Ofgem representative confirmed that TO connection charges are not within the scope of any of the ongoing SCRs. Ofgem also confirmed that they are prepared to consider the case for CMP306 to introduce regional differences into the Cost of Capital applicable to TO Connection Charges.

The Proposer and Workgroup concluded that it would be more cost reflective to use the individual TOs pre-tax WACCs.

For the avoidance of doubt the CMP306 solution will be based on each TOs specific WACC (rather than an average of the TOs WACCs).

Consumer Impact

The Workgroup discussed measuring the Consumer Impact by calculating the financial difference between the 6% baseline and current pre-tax WACC for each TO.

The NGESO representative confirmed that the financial impact of this modification, across all TOs, was approximately £19.3m per annum based on the current 6% WACC compared to the TO specific 2018/19 WACC as shown in the below table;

Table 5: Consumer Impact:

Transmission Owner	2018/19 TO specific WACC	Consumer Impact
NGET	4.60%	£15.5m
SPT	4.94%	£2.0m
SHETL	4.53%	£1.8m

The above analysis removes the effect of the 13% of assets that are charged under the MEA methodology and any assets that have fully depreciated (that are not charged a RoR).

Will the reduction in Connection Charge revenue be recovered elsewhere?

The Workgroup questioned whether the difference in Connection Charge revenue would be recovered elsewhere i.e. through TNUoS or the K Factor (i.e. correction of over/under-recovery of allowed revenue).

The NGETO representative explained that in terms of Post-Vesting Assets and Metering Assets, this would not be recovered elsewhere. The relevant connection charges will just reduce according to a reduced rate of return. In respect of Pre-Vesting Assets, connection charges will similarly reduce BUT consequential changes in charges do occur. This is because Pre-Vesting Asset connection charges are deemed to be funded through Allowed Revenue, and a TO reduces its revenue to be recovered from General Service Charges (via SO TNUoS) by the amount of Pre-Vesting Asset connection charges. So, if Pre-Vesting connection charges reduce for a given year, General Service Charges to the SO (for inclusion in TNUoS) are increased via TO charging submissions under the System Operator Transmission Owner Code Procedures (STCP) 13-1 and 14-1³ process, so as to recover the same relevant TO Allowed Revenue for the relevant year. A consequential supplementary STC change may be required alongside CMP306 to ensure this is applied correctly.

The NGETO representative summarised by stating that with a reduced CUSC WACC, a TOs Maximum Allowed Revenue (MAR) will be unchanged but Excluded Services revenue (for Post-Vesting and Metering asset charges) will reduce.

³ <https://www.nationalgrideso.com/codes/system-operator-transmission-owner-code?code-documents>

Does the 1.5 percentage point uplift for MEA linked assets need to be reviewed

The Workgroup questioned whether the 1.5 percentage points uplift (on top of the 6%) for MEA linked assets was still cost reflective given that the Cost of Capital was declining in the medium term and therefore the MEA uplift represented a greater percentage increase on the RPI equivalent (i.e. same percentage point uplift applied to a smaller baseline).

One view within the Workgroup was that they should consider if the uplift should track as a 25% increase (i.e. 1.5 percentage points MEA uplift relative to the 6% RPI figure) against the core figure, rather than being fixed at 1.5%. This is because if the core figure were to drop to 3% then this would result in an uplift of 50%. If the core figure were to drop down even further to 1.5%, then this would result in an uplift of 100%.

The Proposer explained that his view was that this is out of scope for this modification. Paragraph three of the defect clearly states that this modification “does not consider the appropriate differences between the return on RPI-linked and MEA-linked assets (which is currently set at 1.5%)”. The Proposer has deliberately tried to keep the scope of the defect narrow so that discussions around the appropriate MEA delta do not unnecessarily delay the progress of the modification.

The view of most the Workgroup was that this would not necessarily delay the progress of the modification and that because the MEA figure is linked to the RPI figure plus a 1.5 percentage points delta it is inevitably being amended anyway, so they should be allowed to raise alternatives around this. They could then present all the options to the Authority who could then decide on whether it should stay at 1.5 percentage points or be linked to something else which is more variable.

The Proposer explained that he has already tried to understand if the 1.5 percentage points uplift was appropriate but has struggled to do this because of the significant changes in yearly MEA inflation and not being able to source the original basis for the 1.5 percentage points difference, as it was set so long ago.

The Workgroup requested that the Code Administrator (NGESO) confirm whether any alternatives around MEA uplift would be out of scope for this modification. The Code Administrator sought legal advice on the issue and stated that their view was that any alternatives relating to MEA uplift would be out of scope for this modification. This is because the modification explicitly excludes the difference in return applicable to RPI indexed assets and MEA revalued assets from the scope of the defect and assumes that a 1.5 percentage points uplift will apply to MEA revalued assets. The CUSC does not allow the defect to be amended and any Workgroup alternatives must better facilitate the Applicable CUSC Objectives by addressing the same defect.

The Code Administrator suggested that if the Workgroup still want to consider the appropriateness of the 1.5 percentage points difference for MEA-linked assets, then they should raise another modification proposal to look at this specifically, and request that it be progressed in parallel to CMP306.

Will CMP306 make other payment options, such as Capital Contributions more expensive?

The NGETO representative highlighted that one of the consequences of this modification may be that it makes other payment options, such as Capital Contributions, more expensive. Based on the current and predicted path of the pre-tax WACC, the

CMP306 solution will reduce the rate of return applied to annual connection charges, relative to the 6% (and 7.5% MEA equivalent). The depreciated annual capital costs will therefore reduce on a like-for-like basis, but the rate applied to equivalent upfront costs is not intended to be affected.

The Proposer accepted that this could be a risk, because CMP306 is looking at the rate of return applied to enduring connection charges, rather than upfront.

The Workgroup discussed whether they needed to raise a separate modification to address this issue or if this was an implementation question for the Workgroup Consultation.

The NGESO representative highlighted that CMP306 is looking to revise the rate of return variable (R_n), and where Section 14.3.24 (Capital Contributions) of the CUSC specifically references this variable. Therefore, this change would also affect the rate of return applied in the calculation of Capital Contributions in the same way so there would be no need for any further changes.

The Workgroup concluded that no further discussions were needed on this issue.

What information needs to be published by the TOs?

The NGETO representative highlighted that they would need to tie the transmission licensees into publishing the information required by the SO. Therefore, it would be useful if the SO could confirm what this is.

The NGESO representative explained that the Proposal already confirms where certain information can be found, so it may be that nothing else is required and all they need to do is highlight where this information is.

The Workgroup noted, that as they are moving away from a hard-coded figure of 6% within the CUSC, to aid transparency they may need to publish the WACC for each TO and the rate of return for MEA assets, so that this is easily assessable to smaller Users who may not have the ability or resource to calculate this for themselves. The Workgroup noted that this could be published within the Statement of Use of System Charges by NGESO or on the TOs websites.

The NGETO representative highlighted that there was also a risk around the timing of the information and how that aligns with the System Operator-Transmission Owner Code Procedure (STCP) 13.1 process⁴, which allows them to share their Connection charge setting data with the ESO, to set charges effective from each April.

The NGESO representative explained that he would need to discuss this all with the other TOs to make sure they are happy with the information that needs to be published, the timing of this and how this will be done. They can then raise any subsequent STC modification if these are required.

⁴ <https://www.nationalgrideso.com/codes/system-operator-transmission-owner-code?code-documents>

Is a system change needed to implement the new charging methodology?

The NGESO representative confirmed that a system change will be needed to their CAB (Charging and Billing) system. This is because the CAB currently only contains one variable for the rate of return, a system change will be needed to break this out into TO specific rates.

Future proofing Legal Text for changes in inflation indexation.

The Workgroup discussed future changes in inflation indexation and whether this could move from RPI to CPI within the next price control. If the legal text was amended so that it referenced an external inflation market linked to the PCFM, rather than referring specifically to RPI or CPI, it would future proof it against any future change.

The Workgroup concluded that there were numerous references to RPI within the CUSC, and so a new modification would be needed to align the CUSC to any form of indexation other than RPI. Therefore, this CMP306 proposal did not need to be reviewed in terms of the use of RPI indexation within the CUSC.

Are other parts of the CUSC out of date, in relation to Connection Assets

The Workgroup discussed the Term of Reference set by the CUSC panel and decided that this was too broad a request and out of scope of the defect, so it did not need to be considered.

Implementation

The Proposer explained that he would like this modification to be implemented as soon as possible, i.e. the next charging year, April 2020.

6 Workgroup Consultation

The CMP306 Workgroup is seeking the views of CUSC Parties and other interested parties in relation to the issues noted in this document and specifically in response to the questions highlighted in the report and summarised below:

Standard Workgroup Consultation questions:

- Q1:** Do you believe that CMP306 Original proposal better facilitates the Applicable CUSC Objectives?
- Q2:** Do you support the proposed implementation approach?
- Q3:** Do you have any other comments?
- Q4:** Do you wish to raise a Workgroup Consultation Alternative request for the Workgroup to consider?

Specific CMP306 Workgroup Consultations Questions:

- Q5:** Do you agree with the approach proposed by CMP306 to the MEA uplift?
- Q6:** Do you think that the TOs should publish their individual WACC's/rate of return for MEA assets? If so, do STC modifications need to be raised to achieve this?
- Q7:** Do you agree with the approach to use regional TO WACC's? If not, do you think that the average model is better, or do you have any other suggestions?

Please send your response using the response proforma which can be found on the National Grid ESO website via the following link:

<https://www.nationalgrideso.com/codes/connection-and-use-system-code-cusc/modifications/align-annual-connection-charge-rate-return>

In accordance with Section 8 of the CUSC, CUSC Parties, BSC Parties, the Citizens Advice and the Citizens Advice Scotland may also raise a Workgroup Consultation Alternative Request. If you wish to raise such a request, please use the relevant form available at the weblink below:

<https://www.nationalgrideso.com/codes/connection-and-use-system-code-cusc>

Views are invited upon the proposals outlined in this report, which should be received by **5pm** on 08 May 2019.

Your formal responses may be emailed to: cusc.team@nationalgrideso.com

If you wish to submit a confidential response, please note that information provided in response to this consultation will be published on National Grid's ESO website unless the response is clearly marked "Private & Confidential", we will contact you to establish the extent of the confidentiality. A response marked "Private & Confidential" will be disclosed to the Authority in full but, unless agreed otherwise, will not be shared with the CUSC Modifications Panel or the industry and may therefore not influence the debate to the same extent as a non-confidential response. Please note an automatic confidentiality disclaimer generated by your IT System will not in itself, mean that your response is treated as if it had been marked "Private and Confidential"

7 Impacts & Other Considerations

Details of any potential cross-code, consumer or environmental impacts and attach or reference any other, related work.

This proposal will directly impact the CUSC. The Relevant Transmission Licensee and The Company may also wish for consequential amendments to the System Operator-Transmission Owner Code (STC), although the public nature of the information this amendment requires means this is not strictly necessary. One possible approach to the STC is that the Relevant Transmission Licensee provides the system operator with the pre-tax cost of capital information and potentially publishes it such that customers can easily find it. We would expect the parties to the STC to develop the process and relevant drafting separately. Other than CAB, no other system/process are expected to be impacted.

Does this modification impact a Significant Code Review (SCR) or other significant industry change projects, if so, how?

Ofgem has confirmed that TO connection charges are not in scope of any of the ongoing SCRs.

Ofgem's developing RII0-2 proposals are related in determining what the cost of capital will be in the next price control. This proposal does not impact that process; instead it is drafted to ensure the Connection Charging Methodology remains aligned with the price control on an ongoing basis.

Consumer Impacts

Aligning the rate of return to the pre-tax price control cost of capital of the Relevant Transmission Licensee when calculating connection charges will result in more cost reflective costs levied on the impacted Users. These more cost-reflective charges should ultimately be reflected in the charges seen by energy consumers.

8 Relevant Objectives

Impact of the modification on the Applicable CUSC Objectives (Charging):

Relevant Objective	Identified impact
(a) That compliance with the use of system charging methodology facilitates effective competition in the generation and supply of electricity and (so far as is consistent therewith) facilitates competition in the sale, distribution and purchase of electricity;	None
(b) That compliance with the use of system charging methodology results in charges which reflect, as far as is reasonably practicable, the costs (excluding any payments between transmission licensees which are made under and accordance with the STC) incurred by transmission licensees in their transmission businesses and which are compatible	Positive – aligning the rate of return applied in connection charges to the pre-tax cost of capital in the

with standard licence condition C26 requirements of a connect and manage connection);	Relevant Transmission Licensee's price control will result improved cost reflectivity.
(c) That, so far as is consistent with sub-paragraphs (a) and (b), the use of system charging methodology, as far as is reasonably practicable, properly takes account of the developments in transmission licensees' transmission businesses;	Positive – this proposal will ensure the rate of return aligns to the price control cost of capital and thus reflect changes in subsequent price controls.
(d) Compliance with the Electricity Regulation and any relevant legally binding decision of the European Commission and/or the Agency. These are defined within the National Grid Electricity Transmission plc Licence under Standard Condition C10, paragraph 1 *; and	None
(e) Promoting efficiency in the implementation and administration of the CUSC arrangements.	None
*Objective (d) refers specifically to European Regulation 2009/714/EC. Reference to the Agency is to the Agency for the Cooperation of Energy Regulators (ACER).	

9 Implementation

It is suggested that this proposal is implemented 10 working days after an authority decision and applied from the following 1st April charging year.

10 Legal Text

Text Commentary

The Proposer's proposed legal text replaces the current hard coded rate of return values in 14.3.21 (6% and 7.5%) with references to the latest pre-tax RPI-linked weighted average cost of capital allowed in the Relevant Transmission Licensee's price control for the charging year. This means the relevant value will update from year to year, with reference to the price control.

The proposed text does not directly cross reference specific values (or value names or cell ranges) in the current price control financial model, or other price control documentation. This will help to future-proof the drafting against possible future changes to the structure or variable names in the price control financial model (or other documentation). However, for reference in evaluating this proposal, the relevant cost of capital values can all be sourced from rows 38-40 of the input tab in the latest

(November 2018) RIIO-ET1 PCFM, which can be downloaded from the Ofgem website.⁵

In all its recent price control determinations, the Authority has stated its cost of capital in 'vanilla' terms, which means it mixes a post-tax cost of equity with the un-taxed cost of debt. Corporation taxes on equity returns are then allowed through separate tax allowances. The charging methodology requires a pre-tax cost of capital, so that Users pay their share of the corporation taxes that will be due on the equity element of a reasonable rate of return. To avoid ambiguity over how to calculate a pre-tax cost of capital, the proposed text uses the textbook calculation. This is as follows:

Pre-tax cost of capital = ((1-gearing %) x pre-tax cost of equity) + (gearing % x cost of debt)

Where:

Pre-tax cost of equity = post-tax cost of equity / (1 - corporation tax rate)

The corporation tax rate can be sourced from row 120 of the Tax Trigger tab in the latest PCFM.

The Proposer has also introduced a housekeeping change to the post-depreciation period rate of return. This has been set to zero, which does not affect the calculated charges since it is multiplied by a NAV which, by definition, is also zero at that stage.

Proposed text modifications

14.3.21. The charge for each connection asset in year n can be derived from the general formula below. This is illustrated more fully by the examples in Appendix 2: Examples of Connection Charge Calculations.

Annual Connection Chargen = Dn (GAVn) + Rn (NAVn) + SSFn (RPIGAVn) + TCn (GAVn)

Where:

For n = year to which charge relates within the Depreciation Period

n = year to which charge relates

GAVn = GAV for year n re-valued by relevant indexation method

RPIGAVn = GAV for year n re-valued by RPI indexation

NAVn = NAV for year n based on re-valued GAVn

Dn = Depreciation rate as percentage (equal to 1/Depreciation Period) (typically 1/40 = 2.5% of GAV)

Rn = real rate of return for chosen indexation method (the Relevant Transmission Licencee's price control pre-tax RPI-linked Weighted Average Cost of Capital for year n (RPI-WACCn) for RPI indexation, or the Relevant Transmission Licensee's RPI-WACCn + 1.5 percentage points for MEA indexation ~~6% for RPI indexation, 7.5% for MEA Indexation~~)

⁵ <https://www.ofgem.gov.uk/publications-and-updates/riio-et1-financial-model-following-annual-iteration-process-2018>

SSFn = Site Specific Factor for year n as a % (equal to the Site Specific Cost/Total Site GAV)

TCn = Transmission Running Cost component for year n (other Transmission Owner Activity costs).

RPI-WACCn = cost of debt for year n x notional gearing % for year n + post tax cost of equity for year n / (1 –corporation tax rate for year n) x (1-notional gearing % for year n)

Where:

The cost of debt, notional gearing % and post-tax cost of equity for the Relevant Transmission Licensee, plus the corporation tax rate, are as specified in the latest published Ofgem price control financial model (PCFM) relating to the relevant year or, should Ofgem fail to publish or cease to publish a PCFM, taken from the latest public regulatory determinations or decisions on the cost of capital for the Relevant Transmission Licensee for the relevant year.

For n = year to which charge relates beyond the Depreciation Period

n = year to which charge relates

GAVn = GAV for year n re-valued by relevant indexation method

RPIGAVn = GAV for year n re-valued by RPI indexation

NAVn = 0

Dn = 0

Rn = 0 ~~6% for RPI indexation, 7.5% for MEA Indexation~~

SSFn = Site Specific Factor for year n as a % (equal to the Site Specific Cost/Total Site GAV)

TCn = Transmission Running cost component for year n (other Transmission Owner Activity costs).

11 Annex 1: CMP306 Terms of Reference

Workgroup Terms of Reference and Membership

TERMS OF REFERENCE FOR CMP306 WORKGROUP

CMP306 looks to Align annual connection charge rate of return at CUSC 14.3.21 to price control cost of capital

Responsibilities

1. The Workgroup is responsible for assisting the CUSC Modifications Panel in the evaluation of CUSC Modification Proposal **CMP306 Align annual connection charge rate of return at CUSC 14.3.21 to price control cost of capital**
2. The proposal must be evaluated to consider whether it better facilitates achievement of the Applicable CUSC Objectives. These can be summarised as follows:

Non-Standard (Charging) Objectives

- (a) That compliance with the use of system charging methodology facilitates effective competition in the generation and supply of electricity and (so far as is consistent therewith) facilitates competition in the sale, distribution and purchase of electricity;
- (b) That compliance with the use of system charging methodology results in charges which reflect, as far as is reasonably practicable, the costs (excluding any payments between transmission licensees which are made under and accordance with the STC) incurred by transmission licensees in their transmission businesses and which are compatible with standard licence condition C26 requirements of a connect and manage connection);
- (c) That, so far as is consistent with sub-paragraphs (a) and (b), the use of system charging methodology, as far as is reasonably practicable, properly takes account of the developments in transmission licensees' transmission businesses;
- (d) Compliance with the Electricity Regulation and any relevant legally binding decision of the European Commission and/or the Agency. These are defined within the National Grid Electricity Transmission plc Licence under Standard Condition C10, paragraph 1 *; and
- (e) Promoting efficiency in the implementation and administration of the CUSC arrangements.

3. It should be noted that additional provisions apply where it is proposed to modify the CUSC Modification provisions, and generally reference should be made to the Transmission Licence for the full definition of the term.

Scope of work

4. The Workgroup must consider the issues raised by the Modification Proposal and consider if the proposal identified better facilitates achievement of the Applicable CUSC Objectives.
5. In addition to the overriding requirement of paragraph 4, the Workgroup shall consider and report on the following specific issues:
 - Whether there are any other parts of the Code which are currently out of date in terms of Connection Assets
 - Consideration of ongoing RPI/MEA reporting moving forwards in regards to MEA uplift.
 - Consideration as to how practical information and data flows are published by Transmission Owners, e.g. various costs of capital in financial control models.
 - Clarify how the transmission licenses work in regards to connection and transmission revenues.
6. The Workgroup is responsible for the formulation and evaluation of any Workgroup Alternative CUSC Modifications (WACMs) arising from Group discussions which would, as compared with the Modification Proposal or the current version of the CUSC, better facilitate achieving the Applicable CUSC Objectives in relation to the issue or defect identified.
7. The Workgroup should become conversant with the definition of Workgroup Alternative CUSC Modification which appears in Section 11 (Interpretation and Definitions) of the CUSC. The definition entitles the Group and/or an individual member of the Workgroup to put forward a WACM if the member(s) genuinely believes the WACM would better facilitate the achievement of the Applicable CUSC Objectives, as compared with the Modification Proposal or the current version of the CUSC. The extent of the support for the Modification Proposal or any WACM arising from the Workgroup's discussions should be clearly described in the final Workgroup Report to the CUSC Modifications Panel.
8. Workgroup members should be mindful of efficiency and propose the fewest number of WACMs possible.
9. All proposed WACMs should include the Proposer(s)'s details within the final Workgroup report, for the avoidance of doubt this includes WACMs which are proposed by the entire Workgroup or subset of members.
10. There is an obligation on the Workgroup to undertake a period of Consultation in accordance with CUSC 8.20. The Workgroup Consultation period shall be for a period of **20 working days** as determined by the Modifications Panel.
11. Following the Consultation period the Workgroup is required to consider all responses including any WG Consultation Alternative Requests. In undertaking an assessment of any WG Consultation Alternative Request, the

Workgroup should consider whether it better facilitates the Applicable CUSC Objectives than the current version of the CUSC.

As appropriate, the Workgroup will be required to undertake any further analysis and update the original Modification Proposal and/or WACMs. All responses including any WG Consultation Alternative Requests shall be included within the final report including a summary of the Workgroup's deliberations and conclusions. The report should make it clear where and why the Workgroup chairman has exercised his right under the CUSC to progress a WG Consultation Alternative Request or a WACM against the majority views of Workgroup members. It should also be explicitly stated where, under these circumstances, the Workgroup chairman is employed by the same organisation who submitted the WG Consultation Alternative Request.

12. The Workgroup is to submit its final report to the Modifications Panel Secretary on 20 June 2019 for circulation to Panel Members. The final report conclusions will be presented to the CUSC Modifications Panel meeting on 28 June 2019.

Membership

13. It is recommended that the Workgroup has the following members:

Role	Name	Representing
Chairman	Rachel Hinsley	Code Administrator
Technical secretary	Shazia Akhtar	Code Administrator
National Grid ESO Representative	Grahame Neale	NGESO
Industry Representatives	Lee Wells Garth Graham/Andy Colley Kathryn Evans/Claire Campbell Tim Collins Richard Woodward/ Matthew Paige-Stimpson	Northern Power Grid (Proposer) SSE SP Energy Networks SIMEC Ltd NGETO
Authority Representatives	Andrew Ryan	OFGEM
Observers	Katie Taafe	OFGEM

NB: A Workgroup must comprise at least 5 members (who may be Panel Members). The roles identified with an asterisk in the table above contribute toward the required quorum, determined in accordance with paragraph 14 below.

14. The chairman of the Workgroup and the Modifications Panel Chairman must agree a number that will be quorum for each Workgroup meeting. The agreed figure for CMP306 is that at least 5 Workgroup members must participate in a meeting for quorum to be met.
15. A vote is to take place by all eligible Workgroup members on the Modification Proposal and each WACM. The vote shall be decided by simple majority of

those present at the meeting at which the vote takes place (whether in person or by teleconference). The Workgroup chairman shall not have a vote, casting or otherwise]. There may be up to three rounds of voting, as follows:

- Vote 1: whether each proposal better facilitates the Applicable CUSC Objectives;
- Vote 2: where one or more WACMs exist, whether each WACM better facilitates the Applicable CUSC Objectives than the original Modification Proposal;
- Vote 3: which option is considered to BEST facilitate achievement of the Applicable CUSC Objectives. For the avoidance of doubt, this vote should include the existing CUSC baseline as an option.

The results from the vote and the reasons for such voting shall be recorded in the Workgroup report in as much detail as practicable.

16. It is expected that Workgroup members would only abstain from voting under limited circumstances, for example where a member feels that a proposal has been insufficiently developed. Where a member has such concerns, they should raise these with the Workgroup chairman at the earliest possible opportunity and certainly before the Workgroup vote takes place. Where abstention occurs, the reason should be recorded in the Workgroup report.
17. Workgroup members or their appointed alternate are required to attend a minimum of 50% of the Workgroup meetings to be eligible to participate in the Workgroup vote.
18. The Technical Secretary shall keep an Attendance Record for the Workgroup meetings and circulate the Attendance Record with the Action Notes after each meeting. This will be attached to the final Workgroup report.
19. The Workgroup membership can be amended from time to time by the CUSC Modifications Panel.

Appendix 1

Proposed CMP306 Timetable

The Code Administrator recommends the following timetable:	
Initial consideration by Workgroup	Dec 2018
Workgroup Consultation issued to the Industry	April 2019
Modification concluded by Workgroup	14 June 2019
Workgroup Report presented to Panel	28 June 2019
Code Administration Consultation Report issued to the Industry	July 2019
Draft Final Modification Report presented to Panel	30 Aug 2019
Modification Panel decision	30 Aug 2019
Final Modification Report issued the Authority	16 Sep 2019
Decision implemented in CUSC	1 April 2020

12 Annex 2: How to Calculate the Rate of Return

Rate of Return - NGETO	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	(e.g what 20/21 could look like)
CoD	2.92%	2.72%	2.55%	2.38%	2.22%	1.91%	1.58%	1.58%	A
CoE	7.00%	7.00%	7.00%	7.00%	7.00%	7.00%	7.00%	7.00%	B
Gearing	60.00%	60.00%	60.00%	60.00%	60.00%	60.00%	60.00%	60.00%	C
WACC	4.552%	4.432%	4.330%	4.228%	4.132%	3.946%	3.748%	3.748%	$D = (AxC) + (Bx(1-C))$
Tax	20.00%	20.00%	20.00%	20.00%	19.00%	19.00%	19.00%	17.00%	E
pre-tax WACC	5.252%	5.132%	5.030%	4.928%	4.789%	4.603%	4.405%	4.321%	$F = (AxC) + ((B/(1-E)) * (1-C))$
RPI return	5.25%	5.13%	5.03%	4.93%	4.79%	4.60%	4.40%	4.32%	$G = \text{ROUND}(F, 2)$
MEA delta	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	H
MEA return	6.75%	6.63%	6.53%	6.43%	6.29%	6.10%	5.90%	5.82%	$I = G + H$

Notes
The TOs 'real' pre-tax cost of debt sourced from row 38 of the relevant TO worksheet within Ofgem's RIIO-ET1 Price Control Financial Model (PCFM)
The TOs 'real' post-tax cost of equity sourced from row 39 of the relevant TO worksheet within Ofgem's RIIO-ET1 PCFM
The TOs notional gearing (i.e. percentage of the TOs regulatory asset value (RAV) which is notional debt) sourced from row 40 of the relevant TO worksheet within Ofgem's RIIO-ET1 PCFM
The 'real' Vanilla Weighted Average Cost of Capital (WACC) calculated as a weighted percentage of debt/equity relative to the notional percentage of RAV which is debt/equity
The corporation tax rate set by HMRC and sourced from row 120 of the Tax Trigger sheet for the relevant TO within Ofgem's RIIO-ET1 Price Control Financial Model (PCFM)
The 'real' pre-tax WACC calculated in the same way as the Vanilla WACC other than the post-tax cost of equity is converted to a pre-tax basis using the relevant corporation tax rate
For simplicity and consistent, the pre-tax WACC is rounded to two decimal places. This is the figure that will be used to replace the current 6%
CMP 306 proposes to retain the 1.5 percentage points differential between the rate of return applied to Modern Equivalent Asset (MEA) valued assets compared to those inflated using the Retail Price Indices (RPI)

Rate of Return SPTL	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	(e.g what 20/21 could look like)
CoD	2.92%	2.72%	2.55%	2.38%	2.22%	1.91%	1.58%	1.58%	A
CoE	7.00%	7.00%	7.00%	7.00%	7.00%	7.00%	7.00%	7.00%	B
Gearing	55.00%	55.00%	55.00%	55.00%	55.00%	55.00%	55.00%	55.00%	C
WACC	4.756%	4.646%	4.553%	4.459%	4.371%	4.201%	4.019%	4.019%	$D = (AxC) + (Bx(1-C))$
Tax	20.00%	20.00%	20.00%	20.00%	19.00%	19.00%	19.00%	17.00%	E
pre-tax WACC	5.544%	5.434%	5.340%	5.247%	5.110%	4.939%	4.758%	4.664%	$F = (AxC) + ((B/(1-E)) * (1-C))$
RPI return	5.54%	5.43%	5.34%	5.25%	5.11%	4.94%	4.76%	4.66%	$G = \text{ROUND}(F, 2)$
MEA delta	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	H
MEA return	7.04%	6.93%	6.84%	6.75%	6.61%	6.44%	6.26%	6.16%	$I = G + H$

Notes
The TOs 'real' pre-tax cost of debt sourced from row 38 of the relevant TO worksheet within Ofgem's RIIO-ET1 Price Control Financial Model (PCFM)
The TOs 'real' post-tax cost of equity sourced from row 39 of the relevant TO worksheet within Ofgem's RIIO-ET1 PCFM
The TOs notional gearing (i.e. percentage of the TOs regulatory asset value (RAV) which is notional debt) sourced from row 40 of the relevant TO worksheet within Ofgem's RIIO-ET1 PCFM
The 'real' Vanilla Weighted Average Cost of Capital (WACC) calculated as a weighted percentage of debt/equity relative to the notional percentage of RAV which is debt/equity
The corporation tax rate set by HMRC and sourced from row 120 of the Tax Trigger sheet for the relevant TO within Ofgem's RIIO-ET1 Price Control Financial Model (PCFM)
The 'real' pre-tax WACC calculated in the same way as the Vanilla WACC other than the post-tax cost of equity is converted to a pre-tax basis using the relevant corporation tax rate
For simplicity and consistent, the pre-tax WACC is rounded to two decimal places. This is the figure that will be used to replace the current 6%
CMP 306 proposes to retain the 1.5 percentage points differential between the rate of return applied to Modern Equivalent Asset (MEA) valued assets compared to those inflated using the Retail Price Indices (RPI)

Rate of Return SHE	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	(e.g what 20/21 could look like)
CoD	2.92%	2.50%	2.15%	1.79%	1.51%	1.16%	1.00%	1.00%	A
CoE	7.00%	7.00%	7.00%	7.00%	7.00%	7.00%	7.00%	7.00%	B
Gearing	55.000%	55.000%	55.000%	55.000%	55.000%	55.000%	55.000%	55.000%	C
WACC	4.76%	4.53%	4.33%	4.13%	3.98%	3.79%	3.70%	3.70%	$D = (AxC) + (Bx(1-C))$
Tax	20.000%	20.000%	20.000%	20.000%	19.000%	19.000%	19.000%	17.000%	E
pre-tax WACC	5.54%	5.31%	5.12%	4.92%	4.72%	4.53%	4.44%	4.35%	$F = (AxC) + ((B/(1-E)) * (1-C))$
RPI return	5.54%	5.31%	5.12%	4.92%	4.72%	4.53%	4.44%	4.35%	$G = \text{ROUND}(F,2)$
MEA delta	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	H
MEA return	7.04%	6.81%	6.62%	6.42%	6.22%	6.03%	5.94%	5.85%	$I = G+H$
Average rate of return across the TOs	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	
Min	5.25%	5.13%	5.03%	4.92%	4.72%	4.53%	4.40%	4.32%	
Max	5.54%	5.43%	5.34%	5.25%	5.11%	4.94%	4.76%	4.66%	
Min v Max	0.29%	0.30%	0.31%	0.33%	0.39%	0.41%	0.36%	0.34%	
Average (mean)	5.44%	5.29%	5.16%	5.03%	4.87%	4.69%	4.53%	4.44%	

Notes
The TOs 'real' pre-tax cost of debt sourced from row 38 of the relevant TO worksheet within Ofgem's RIIO-ET1 Price Control Financial Model (PCFM)
The TOs 'real' post-tax cost of equity sourced from row 39 of the relevant TO worksheet within Ofgem's RIIO-ET1 PCFM
The TOs notional gearing (i.e. percentage of the TOs regulatory asset value (RAV) which is notional debt) sourced from row 40 of the relevant TO worksheet within Ofgem's RIIO-ET1 PCFM
The 'real' Vanilla Weighted Average Cost of Capital (WACC) calculated as a weighted percentage of debt/equity relative to the notional percentage of RAV which is debt/equity
The corporation tax rate set by HMRC and sourced from row 120 of the Tax Trigger sheet for the relevant TO within Ofgem's RIIO-ET1 Price Control Financial Model (PCFM)
The 'real' pre-tax WACC calculated in the same way as the Vanilla WACC other than the post-tax cost of equity is converted to a pre-tax basis using the relevant corporation tax rate
For simplicity and consistent, the pre-tax WACC is rounded to two decimal places. This is the figure that will be used to replace the current 6%
CMP 306 proposes to retain the 1.5 percentage points differential between the rate of return applied to Modern Equivalent Asset (MEA) valued assets compared to those inflated using the Retail Price Indices (RPI)

Supporting commentary

WACC is the Vanilla Weighted Average Cost of Capital, as defined in the RIIO price control financial handbook: https://www.ofgem.gov.uk/system/files/docs/2017/08/et1_handbook_-_v2.0.pdf

The Vanilla Weighted Average Cost of Capital is Ofgem's preferred way of expressing the rate of return allowed on the Regulatory Asset Values (RAV) of price controlled network companies. The use of Vanilla WACC means that the company's tax cost is separately calculated as a discrete allowance so that only the following have to be factored in:

- the pre-tax cost of debt - i.e. the percentage charge levied by lenders, and
- the post tax cost of equity – i.e. the percentage return equity investors expect to actually receive, weighted according to the price control gearing assumption.

"Real Vanilla WACC" is used which gives a lower percentage than "Nominal Vanilla WACC" would (when inflation is positive). This is because inflation isn't taken into account in the determination of the Real Vanilla WACC percentage.

In limited circumstances Ofgem also use a pre-tax WACC, which comprises a pre-tax cost of debt and a pre tax cost of equity weighted together by the gearing level.

The pre-tax WACC is proposed to be used for CMP 306, and where the cost of equity, expressed on a post-tax basis in the Vanilla WACC, is uplifted by corporation tax in the relevant year. Otherwise the calculation of the Vanilla WACC and pre-tax WACC is the same.