PC21 Draft Determination NI Water Response

Annex 5.22 Annex J RPA PC21 (CEPA)

V3.4

Executive Summary

Regional Price Adjustments (RPA) are used to account for variations in costs between various regions of the UK. When cost data from another region is used as the basis of costs in NI it is important that they are adjusted to reflect the local market in terms of labour, plant and materials costs. This paper is prepared in response to Annex J of the Draft Determination in relation to RPA analysis undertaken by CEPA.

For pricing PC21, NIW has used some Capex cost data from UK regions (estimated to be 6% of the PC21 programme) and these costs were adjusted by -8.4% based on the CEPA Mar 2019 report. CEPA updated the analysis and issued a revised RPA adjustment figure of 91% issued 11th December 2019, after the NI Water data freeze for PC21 submission. The Reporter has recommended a deduction of £730k based on this updated RPA figure and this adjustment was presented in the Capex Calculator.

NIW has undertaken a review of the work undertaken by CEPA and have proposed the use of the latest ASHE data (2020) for Labour comparisons. Further analysis of the MEICA components of materials costs also suggest a minor change to the figures generated with a recommended RPA figure of -7.2% as shown below in Table ES1.

An independent review of the RPA figures was undertaken by Chandler KBS and these align closely with the numbers generated by NIW and are closer to the figures derived for PC15.

	low	proposed	high	NI lower than UK average
CEPA PC15	87.3%	93.8%	95.9%	6.2%
CEPA Mar19	84%	91.6%	95%	8.4%
CEPA Dec 19	87%	91.0%	96%	9.0%
NIW 2020 – Labour Adjustment Only		92.5%		7.5%
NIW 2020 - Labour RPA and MEICA adjustment	88.3%	92.8%	96%	7.2%
Chandler KBS 2020		93.4%		6.6%

Table ES1 All RPA figures generated by CEPA, NIW and Chandler KBS.

Using the latest figures issued for ASHE Labour and taking account of MEICA splits within the PC21 programme results in a change in RPA from -9% to -7.2%. The Reporter has proposed a deduction in the Capex calculator for the change from the current figure of -8.4% to 9% but the analysis in this report indicates that this should be a positive figure as RPA moves from -8.4% to -7.2% as shown below in Table ES2.

Table ES2 Impact of RPA figure on the Capex Calculator

Ref	Comments	PC21
G	Adjustment due to RPA update -8.4% to -9% - Reporter	-0.73
	NIW Calculated RPA update -8.4% to -7.2%	1.417

1 Background

CEPA issued initial results for RPA analysis on 14th March 2019 [CAWG Capex #6] with a recommendation of 91.6% (NI costs 8.4% lower than GB).

CEPA updated the analysis and issued a revised RPA adjustment figure of 91% issued 11th December 2019, after the NI Water data freeze for PC21 submission. Further detail on the RPA derivation has been provided in Annex J (Regional Price Adjustments PC21)¹ of the Draft Determination and this paper has been prepared in response that.

NIW had used the original figure of -8.4% to adjust all Industry data used in cost curve derivation and we estimated that industry data was used as the source for around 6% of the costs. The Reporter has used these figures in the Capex Calculator to apply a deduction of \pounds -730k. (6% of \pounds 2024m x (9%-8.4%) as shown in Table 1.1 below.

Table 1.1 Extract from Capex Calculator

Ref	Reporter Comments	PC21
G	Updated CEPA Regional Price Adjustment [All Sub- Programmes] (0.56) (0.17) (0.73) Excerpt taken from NIW PC21_Stage 2 Report response 3a Costing Method v6.2: 'The updated report from CEPA changed RPA from -8.4% to -9% and this is only applicable to 6% of the base costs (those from Industry Sources with no NIW data)'. The true cost impact of external data would be difficult, very time consuming to calculate and beyond the Reporter's Audit Plan. NI Water's sums have been used. The majority of add-ons to base cost are percentages and so for convenience 6% of the total programme has been used for this component across PC21 including LWWP.	-0.73

The approach taken by CEPA for PC15 suggested that the regional price adjustment for NI Water at PC15 was 93.8%, i.e. 6.2% below the average regional price in UK.

NIW do not believe that the RPA gap has increased to the level reported by CEPA i.e. from -6.2% to -9% from PC15 to PC21 and the purpose of this paper is to review the data and assumptions used in the CEPA analysis. Chandler KBS were engaged to undertake an independent review of the RPA analysis undertaken by CEPA and to include the latest ASHE data which was published Nov 2020. This report is attached as Appendix A.

¹ https://www.uregni.gov.uk/consultations/consultation-pc21-price-control-draft-determination

2 PC21 methodology

CEPA presented the assumptions used in the derivation of the RPA figure in March 2019 and provided updated assumptions in the Draft Determination (Annex J)².

CEPA reviewed the main components of cost build up under the headings of Labour, Plant and Materials in order to determine the RPA adjustment. A split of 40:20:40 for Labour: Plant and Equipment: Materials respectively was used and this is the same as the PC15 RPA model.

2.1 Labour Costs

The initial data analysis undertaken by CEPA used the ASHE dataset for 2018. This was updated in Dec 2019 with the 2019 Annual Survey of Hours and Earnings (ASHE) data release for UK³ and NI⁴. We believe the data used by CEPA was the provisional 2019 dataset. This has since been superceded with the 2019 final data and additional provisional data for 2020 has also been published. CEPA confirm in the report issued with the Draft Determination that "Our baseline analysis considers all employees' median hourly wages excluding overtime across relevant occupations"

Some of the 3 digit SOC codes in that data have been replaced with 2 digit codes to improve data source confidence (212 changed to 21 and 912 changed to 91). Table 2.1 below shows the results of the updated CEPA analysis presented in Dec 2019 (using 2019 ASHE data).

Occupation			S	SOC Code Weighting RPA						
Science, research	, eng. and te	onals	21	83%						
Science, engin. a	nd tech. asso	sionals	31	4%	89%					
Corporate manag	rporate managers and directors 11 4%									
Administrative				41	2%	94%				
Skilled constructi	on			53 56% 879						
Elementary trade	es and relate	d occupatior	ns	91 8% 95						
Plant and machir	es operative	es		81	16%	92%				
					Labour RPA	88%				
	2014	2015	2016	2017	2018	2019				
Labour RPA	85%	89%	88%	88%	89%	88%				

Table 2.1 CEPA Labour results

In order to understand these figures we have reviewed the ASHE data for UK and NI in order to assess sensitivity to the data set used as there are many data sets issued in the ASHE publication. There are weekly pay tables (with overtime and without) as well as hourly pay and Annual Pay tables.

We have undertaken a review of the approach taken by other regulators to regional wage adjustments and these are summarised below in Table 2.2. This is an extract from Annex 6 (Table 2 page 15) of the Ofgem Consultation Paper RIIO-2 tools for cost assessment⁵. While weekly pay is one dataset, we note that CEPA recommend the use of hourly rates in their work undertaken for OfGem, although we note most of the historical comparisons undertaken by the UR use weekly data.

 $^{^2\} https://www.uregni.gov.uk/sites/uregni/files/media-files/UR\%20PC21\%20DD\%20Annex\%20J\%20-contextmetric and the second second$

^{% 20} Regional % 20 Price % 20 A djustments % 20 PC 21 % 20 % 28 CEPA % 29 % 2001.00 % 20 Published.pdf

³

https://www.ons.gov.uk/employmentandlabourmarket/peopleinwork/earningsandworkinghours/datasets/occupation2digitsoc ashetable2

⁴ https://www.nisra.gov.uk/publications/ashe-tables-ods

 $^{^{5}\} https://www.ofgem.gov.uk/publications-and-updates/riio-2-tools-cost-assessment-consultation$

Characteristic	Ofgem	Ofgem Ofgem		UR GD17	UR RP6*	
	RIIO-	RIIO-ED1	PR14			
	GD1					
Mean <i>vs</i> median	Mean	Mean	Mean	Median	Median	
SOC code level	2 digit	2 digit	2 digit	2 digit	2 digit	
Overtime	Including	Including	Excluding	Excluding	Excluding	
All employees or only	All	All	Not	Full time	Full time	
full-time employees	employees	employees	reported			
Hourly / Weekly	Hourly	Hourly	Hourly	Weekly	Weekly	
wages						

Table 2.2 Alternative regulatory approaches to regional wage adjustments

The CEPA analysis uses:

- Median
- 2 digit
- Excluding
- All employees
- Hourly

Details of the analysis are presented in Table 2.3 below.

Description	Code	Number of	UK Median	`	Number of	NI Median		calculated	CEPA	CEPA
		jobs			jobs			RPA using	figure	Weighting
		(thousands)		1	(thousands)	10		Median <u>·</u>	-	•
All employees		26,704	13		873	12				
officials	1	2 846	21		57	20				
		2,010			0.	20				
Corporate managers and directors	11	2,400	23		45	22		98%	95%	4%
Other managers and proprietors	12	446	15		12	17				
Professional occupations	2	6,044	21		198	20	_			
Science, research, engineering	21	1 384	21		41	18		83%	83%	10%
Health professionals	22	1,607	19		64	19		0070	0070	1070
Teaching and educational		,	-		-	-				
professionals	23	1,539	23		49	24				
Business, media and public service										
professionals	24	1,515	21		44	19				
Associate professional and technical occupations	3	3 908	16		105	14				
Science, engineering and	5	3,300	10		105	14				
technology associate professionals	31	715	14		15	13		88%	89%	4%
Health and social care associate										
professionals	32	384	13		18	12				
Protective service occupations	33	313	19		17	20				
Culture, media and sports	24	266	14		6	11				
Business and public service	- 34	200	14		0					
associate professionals	35	2,231	17		49	16				
Administrative and secretarial										
occupations	4	3,027	11		104	11				
Administrative occupations	41	2,427	12		85	11		93%	94%	2%
Secretarial and related occupations	12	600	10		20	10				
Skilled trades occupations	42	1.917	10		81	11				
Skilled agricultural and related	-	.,			•					
trades	51	103	10		х	9				
Skilled metal, electrical and										
electronic trades	52	999	14		46	12	_			
Skilled construction and building	53	303	12		13	11		86%	87%	56%
Textiles printing and other skilled	- 55	303	13		13			00 /0	07 /6	50 %
trades	54	511	10		18	10				
Caring, leisure and other service										
occupations	6	2,524	10		86	10	_			
Caring personal service	61	0.100	10		70	10				
Leisure travel and related personal	61	2,102	10		12	10				
service occupations	62	422	10		14	10				
Sales and customer service										
occupations	7	2,014	9		69	8				
Sales occupations	71	1,454	9		56	8	_			
Customer service occupations	72	561	10		13	9				
process, plant and machine	g	1 500	11		76	10				
Process, plant and machine	-	1,500			70	10				
operatives	81	702	11		48	10		92%	92%	16%
Transport and mobile machine										
drivers and operatives	82	799	11		27	10				
Elementary occupations	9	2,925	9		97	9				
Liementary trades and related	01	354	۵		11	۵		95%	95%	80/
Elementary administration and		004	3			3		3370	3570	0 /0
service occupations	92	2,571	9		86	9				
								88.0%	88.6%	

Table 2.3 ASHE data Hrly pay – Excluding Overtime (£) – UK v Northern Ireland Prov 2019

Additional data has been published since the time of the CEPA report and we have therefore undertaken the same analysis on the latest ASHE data figures (2020 provisional issued 03 November 2020). This indicates that RPA for Labour is 91.6%.

All figures are shown below in Table 2.4 together with the CEPA numbers used for PC21.

Table 2.4 Comparison of CEPA figures with ASHE hrly data 2019 and 2020

			Hourly ASH	E Data (excl OT)
	CEPA Figure Dec 19	weighting	2019 prov	2020 prov
Corporate managers and directors	95%	4%	98%	97%
Science, research, engineering and technology professionals	83%	10%	83%	87%
Science, engineering and technology associate professionals	89%	4%	88%	88%
Administrative occupations	94%	2%	93%	91%
Skilled construction and building trades	87%	56%	86%	90%
Process, plant and machine operatives	92%	16%	92%	97%
Elementary trades and related occupations	95%	8%	95%	92%
RPA	88.6%		88.0%	91.6%

2.2 Plant and Equipment

For the purposes of this paper we have assumed Plant and Equipment is in line with the definitions given under NEC and relates to equipment used for the construction work and will not remain on site upon completion of the works. The RPA factor determined by CEPA is 100% for this item (i.e. same cost in NI as in UK) therefore no further analysis required.

2.3 Materials

At PC15 there were concerns raised about the costs for Mechanical, Electrical, Instrumentation, Control and Automation (MEICA) elements for major Non Infrastructure projects. We believe this concern needs raised again as there is no allocation of MEICA equipment under the materials listed in the CEPA report. The list and allocations by Sub Category are shown below in Table 2.5.

Category	Category Share Capex	Sub Category Share	Sub Category Factor	Contribution to RPA
Materials	40.00%			
Concrete		6.0%	65%	0.039
Rebar		2.0%	78%	0.016
Pipes		14.0%	100%	0.140
Meter		1.0%	100%	0.010
Other materials (aggregates, br	icks etc.)	12.0%	90%	0.108
Disposal		5.0%	93%	0.047

Table 2.5 CEPA model Materials Sub Category

At PC10 Jacobs analysis of the contractor costs indicated a weighting of 79.58% for Civil Works components and 20.42% for MEICA. NI Water had indicated that MEICA comprised 24.5% of the PC15 programme. IPAC has splits of Civil, Mech, Electrical and ICA components for each cost curve as this is used in the WLC analysis and we have been able to review these splits for all the cost curves used to generate the programme and the numbers are shown below in Table 2.6. This shows MEICA to be around 29% of the programme costs which aligns well with PC15 figures. We note that all Cap Sals, land and M&G costs are excluded in this breakdown. Risk and overheads are also excluded in the totals shown.

Table 2.6 PC21 submission split Civil and MEICA

Price Control Preferred Regulator Output	(Multiple Items) TRUE TRUE	ਤ ਤ ਤ						IPAC report		05/12/2019
Row Labels	Sum of Total Fa	ctored CAPEX	Su	m of Civil	Su	m of Mech	Su	m of Elec	Su	m of ICA
Asset	£	353,091,104	£	135,265,290	£	83,776,672	£	64,316,712	£	69,732,430
Infra	£	499,416,642	£	495,963,515	£	2,430,627	£	-	£	1,022,500
Land	£	5,519,811	£	5,519,811	£	-	£	-	£	-
M&G	£	140,667,413	£	140,667,413	£	-	£	-	£	-
Opex	£	-	£	-	£	-	£	-	£	-
PROCESS	£	76,459,548	£	48,441,119	£	13,440,331	£	10,252,576	£	4,325,522
Site General	£	54,334,936	£	54,323,327	£	11,609	£	-	£	-
SR Refurb	£	11,581,963	£	11,523,155	£	55,208	£	-	£	3,600
UNIT	£	264,774,002	£	153,438,919	£	64,302,543	£	28,390,441	£	18,642,099
Cap Sals	£	116,897,585	£	116,897,585	£	-	£	-	£	-
Grand Total	£	1,522,743,004	£	1,162,040,134	£	164,016,989	£	102,959,730	£	93,726,152

Total Excluding	£	1,259,658,195	£	898,955,325	£	158,497,178	£	97,439,919	£	88,206,341
M&G, Cap Sals and										
Land				71%		29%				

NIW believe that the cost for some MEICA elements can be more expensive in NI with estimates of costs being up to 10% more than in GB for some items.

This part of the programme would generally be nationally or internationally sourced and will cost more in Northern Ireland due to transport and handling costs. There is no significant manufacturing base in Northern Ireland for this type of MEICA installed equipment (pumps, screens, blowers, instruments etc.). The only items of note manufactured in Northern Ireland are some control panels, though these represent a small proportion of the total MEICA equipment purchased. In a growing international market, many MEICA items are imported from the Republic of Ireland (many companies have a base in Dublin and supply Northern Ireland from there). Labour costs for installation of these elements will be higher if specialist staff are used for installation and commissioning.

The original report submitted by CEPA in March 2019 indicated more detail on the materials included in the analysis as shown below in Figure 1. This would indicate that the heading of "Meter" in the materials table actual includes the MECIA components.

Figure 1 CEPA materials headings from March 2019 report

Concrete	Rebar	Pipes	Other materials (aggregates, bricks,	Mechanical parts (water meters,
			etc.)	valves, pumps, etc.)

This would support the statement that the MECIA elements of the programme are under- represented in the model as <1% of costs are included. We also believe that pipes are over represented. An analysis of the build up of the watermains rates for PC21 would indicate that pipe supply accounts for between 5 and 30% of the total cost of mains laying. Most of the programme involves installation of the smaller diameters and 7.5% has been calculated using the PC15 splits of lengths installed.

An analysis of the data download from IPAC shows that infrastructure cost curves account for 36% of the total value⁶. This analysis would suggest that the proportion allocated to pipe in the model is therefore 7.5% (of infra is the pipes) x 36% (of the programme is infra) = 2.1%. An allowance has been added for pipework on non-infrastructure projects which increases this figure to 7.2%.

Our analysis of IPAC has indicated that 29% of construction costs relate to MEICA elements but the CEPA model allocates less than 2% of the total programme to MEICA. Table 2.7 below shows a revised proposed split of materials in the model taking account of the revised pipe allocation and MEICA elements.

'Meters' is assumed to be MEICA and has been split into 2 lines – 75% of PC21 MECIA with 105% RPA to reflect equipment imported to NI from Ireland or UK and 25% of PC21 MECIA with 90% RPA to reflect locally made equipment.

Category	Category Share Capex	Sub Category Share		Sub Category Factor	Contribution to RPA
Materials	40.00%				
Concrete		15.3%	6.100%	65%	0.040
Rebar		5.3%	2.10%	78%	0.016
Pipes		7.3%	2.92%	100%	0.029
Meters, valves, pumps, (MEICA) - imported		21.5%	8.6%	105%	0.090
Control Panels and Equipment (MEICA) - local		7.1%	2.84%	90%	0.026
Other materials (aggregates, bricks etc.)		31.1%	12.44%	90%	0.112
Disposal		12.5%	5.00%	93%	0.047

Table 2.7 revised Materials sub-category allocations

⁶ Note this is cost curves tagged as infra not project category infra. Infra cost curves are watermains, sewers, communication pipes, etc. There will be projects tagged as Infrastructure that have non infra elements included such as chambers etc. and these are not included here.

3 The CEPA model

NIW has rebuilt the CEPA model using the numbers issued on 14th December 2019. This model is shown below in Figure 3.1 for information. Labour figures were based on the 2019 provisional data.

CEPA Base Model						
Category	Category Share Capex	Sub Category Share		Sub Category Factor	Contribution to RPA	
Labour	40.00%					
						Labour RPA
Man and Dir (11)		4%	1.6%	95%	0.015	3.8%
Engineering Prof (21)		10%	4.0%	83%	0.033	8.3%
Science Eng (31)		4%	1.6%	89%	0.014	3.6%
Admin (41)		2%	0.8%	94%	0.008	1.9%
Skilled Construction (53)		56%	22.4%	87%	0.195	48.7%
Plant etc Operatives (81)		16%	6.4%	92%	0.059	14.7%
Elementary Trades (91)		8%	3.2%	95%	0.030	7.6%
		100%				88.6%
Plant & Equip	20.00%	20.00%	20.00%	100%	0.200	
Materials	40.00%					
Concrete		6%	6%	65%	0.040	
Rebar		2%	2%	78%	0.016	
Pipes		14%	14%	100%	0.142	
Meter		0.6%	1%	100%	0.006	
Other materials (aggregates, br	icks etc.)	12%	12%	90%	0.108	
Disposal		5%	5%	93%	0.047	
Aggregated RPA	100.00%		100 00%		91 29%	9%

Figure 3.1 CEPA model using numbers issued December 2019

4 Variations to the CEPA Model

4.1 Amended Labour RPA

Our analysis would indicate that the Labour RPA should be updated to 2020 figures which would change Labour RPA from 88% to 91.6%.

This one change in the CEPA model would change the overall RPA from 91% to 92.5% (NI 7.5% lower than UK average). Table 4.1 below shows the CEPA model with only the Labour Sub Category Factors changed (high lighted). All other elements remain unchanged. We note the recommendations of the Chandler KBS report (Appendix A) which also suggests that adjustments should be included for labour that is not local to Northern Ireland, especially within the Science and Engineering elements (31). Many of the specialists used by the consultants that NIW engage are not based in Northern Ireland and staff from UK offices are often used by the larger consultants. This allowance has not been included in this model.

Category	Category Share Capex	Sub Category Share		Sub Category Factor % diff	Contribution to RPA	
Labour	40.00%					
						Labour RPA
Man and Dir (11)		4.00%	1.600%	97.4%	0.016	3.9%
Engineering Prof (21)		10.00%	4.00%	87.5%	0.035	8.7%
Science Eng (31)		4.00%	1.60%	88.5%	0.014	3.5%
Admin (41)		2.00%	0.80%	91.0%	0.007	1.8%
Skilled Construction (53)		56.00%	22.40%	90.4%	0.203	50.6%
Plant etc Operatives (81)		16.0%	6.40%	97.1%	0.062	15.5%
Elementary Trades (91)		8.00%	3.20%	92.3%	0.030	7.4%
						91.6%
Plant & Equip	20.00%	100.00%	20.0%	100.0%	0.2	
Materials	40.00%					
Concrete		15%	6%	65.0%	0.040	
Rebar		5%	2%	78.0%	0.016	
Pipes		36%	14%	100.0%	0.142	
Meter		2%	1%	100.0%	0.006	
Other		30%	12%	90.0%	0.108	
Disposal		13%	5%	93.0%	0.047	
		100%				
Aggregated RPA	100.00%		100.00%		92.5%	7.5%

Figure 4.1 CEPA model using ASHE hourly pay RPA (all other data unchanged) Base Model with Labour amended only (hrly 2020 Prov data)

4.2 Plant and Equipment RPA

CEPA model indicates Plant and Equipment RPA to be 1, i.e. costs in NI are equivalent to costs across UK. No adjustments proposed.

4.3 Materials RPA

Adjusting the Materials allocations to take account of the MEICA plant has also been modelled in order to determine impact on the RPA figure as shown below in Table 4.2. This resulted in a small change from 92.5% to 92.8%. Further work would be required to determine if the allocations for the other elements are reasonable. Chandler KBS have done some further analysis on material splits and have proposed amended proportions, although we note that the impact is not material.

Table 4.2	CEPA ba	se model	with Lal	bour and	MEICA	amended
	CE17100	Se mouel	WICH LOU	oour unu	THE CAL	annenaea

Base Model with Labour amended (hrly 2020 Prov data) and Amended MECIA in materials							
Category	Category Share Capex	Sub Category Share		Sub Category Factor	Contribution to RPA		
	10.000/						
Labour	40.00%						
						Labour RPA	
Man and Dir (11)		4%	1.6%	97.4%	0.016	3.9%	
Engineering Prof (21)		10%	4.0%	87.5%	0.035	8.7%	
Science Eng(31)		4%	1.6%	88.5%	0.014	3.5%	
Admin (41)		2%	0.8%	91.0%	0.007	1.8%	
Skilled Construction (53)		56%	22.4%	90.4%	0.203	50.6%	
Plant etc Operatives (81)		16%	6.4%	97.1%	0.062	15.5%	
Elementary Trades (91)		8%	3.2%	92.3%	0.030	7.4%	
		100%				91.6%	
Plant & Equip	20.00%	20.00%	20.00%	100%	0.200		
Materials	40.00%						
Concrete		15.3%	6.100%	65%	0.040		
Rebar		5.3%	2.10%	78%	0.016		
Pipes		11.9%	4.76%	100%	0.048		
Meters, valves, pumps, (MEICA) - imported		21.5%	8.6%	105%	0.090		
Control Panels and Equipment (MEICA) - local		7.1%	2.84%	90%	0.026		
Other materials (aggregates, bricks etc.)		26.5%	10.60%	90%	0.095		
Disposal		12.5%	5.00%	93%	0.047	1	
		100.00%					
Aggregated RPA	100.00%		100.00%		92.8%	7.2%	

5 Summary

NIW have reviewed the CEPA model base data and assumptions.

We believe the use of Weekly labour rates gives lower results than hourly figures used by Ofwat and that hourly rates should be used to be consistent with Ofwat. Most staff in some of the professions listed are employed on annual contracts and there may be more relevance to use annual salaries in the model

In addition to this we believe the CEPA model does not adequately reflect the higher costs for MEICA in NI, although our initial assessment would indicate that this is not material to the results presented.

Table 5.1 below presents all the various permutations of the figures presented in this report and these are also presented graphically in Figure 2.

	low	proposed	high	NI lower than UK
				average
CEPA PC15	87.3%	93.8%	95.9%	6.2%
CEPA Mar19	84%	91.6%	95%	8.4%
CEPA Dec 19	87%	91.0%	96%	9.0%
NIW 2020 – Labour Adjustment Only		92.5%		7.5%
NIW 2020 - Labour RPA and MEICA adjustment	88.3%	92.8%	96%	7.2%
Chandler KBS 2020		93.4%		6.6%

 Table 5.1 RPA range and recommendation from CEPA and NIW proposed

Figure 2 RPA range and recommendation from CEPA and NIW proposed



CEPA adjusted the upper and lower bounds of the range for the final issue which are now almost identical to that produced for PC15 but have derived a midpoint lower than the initial figure issued in March 2019 and considerably lower than that issued for PC15 as shown in Figure 3 below.

Figure 3 RPA adjustments CEPA progression PC15 to PC21



The updated figures presented using the NIW methodology take account of the Labour RPA adjustment using 2020 data as well as increased MECIA components. It is our recommendation that a figure of 92.8% be adopted for PC21 (-7.2%).

6 Impact on PC21 Submission

Using the NIW derived figure of -7.2% in the Reporter's Capex Calculator would result in an increase of around £1.417m rather than the current deduction of $\pm 0.73m$ (swing of $\pm 2.15m$). The impact is shown below in Table 6.1. Using the Chandler KBS recommended RPA would result in a swing of $\pm 2.9m$.

	CEPA Mar19 (used for PC21 submission)	CEPA Dec19	NIW Proposed	Chandler KBS
RPA figure	-8.4%	-9.0%	-7.2%	-6.6%
PC21 Submission CAPEX	2,036,418,134			
Reporter proposed adjustment (£)		-£728,781		
NIW Adjustment (£)			£1,417,167	
Chandler KBS Adjustment (£)				£2,186,344

Table 6.1 Impact of each RPA figure on the PC21 Submission CAPEX

7 Summary

Regional Price Adjustment (RPA) is a tool used in comparative efficiency to 'level the playing field' between different companies operating across a geographic spread. This allowed Ofwat to more directly compare costs between companies operating in the South East of England, where costs were higher than those in the North.

The approach taken by CEPA, for PC21 was a top-down analysis using nationally available data, similar to what was undertaken for PC15. This approach suggests that the regional price adjustment factor for NI Water should be 91%, i.e. 9% below UK. CEPA adjusted the upper and lower bounds of the range for the final issue which is almost identical to that produced for PC15 but have derived a midpoint lower than the initial figure issued in March 2019 and considerably lower than that issued for PC15 as shown in Figure 4 below.



Figure 4 RPA adjustments CEPA progression PC15 to PC21

CEPA reviewed the cost for Labour, Plant and Materials in NI compared to average UK prices. A split of 40:20:40 for Labour: Plant and Equipment: Materials respectively was used and this is the same as the PC15 RPA model. We have not been able to obtain evidence based figures from the supply chain to challenge this figure but this split is supported by analysis under by Chandler KBS.

CEPA used published ASHE data for Labour costs. Hourly pay data and Provisional numbers for 2019 used. NI Water suggest that the most recent 2020 data is used. Use of this data would change the Labour RPA from 88% to 91.6%.

NI Water consider Plant and Materials to be associated with construction activities, in line with the definition given in the NEC contract. The cost of these items were judged by CEPA to be the same in NI as the average for UK and NIW have not proposed any adjustment.

The principles of the CEPA top-down approach for materials was found to be acceptable, however there was a concern over the treatment of the MEICA component of the PC21 programme, as to where and how RPA would be applied. With respect to the MEICA, the concern remains whether this component has been fully accounted for and how it has been included. We have included MEICA adjustments in the modelling but found the impact to be small.

When the Labour RPA adjustment for Annual pay is combined with the MEICA RPA adjustment the overall impact on the total RPA figure can be determined as shown in Figure 5 below. This would indicate that the RPA should be between 88 and 96% with a recommendation of 92.8% (i.e. NI is 7.2% lower than GB).

Figure 5 CEPA RPA range and recommendation compared to NIW proposed



The proposed impact of each RPA adjustment on the PC21 CAPEX figures are shown below in Table 7.1. The figures have been derived using the same approach adopted by the Reporter i.e. assumes RPA affects 6% of the programme.

Table 7.1	Impact of each	all methodolo	aies on the	Total CAPEX
Table 1.1	impact of each	all methodolo	gies on the	TUTAL CAPEA

	CEPA Mar19 (used for PC21 submission)	CEPA Dec19	NIW Proposed	Chandler KBS
RPA figure	-8.4%	-9.0%	-7.2%	-6.6%
PC21 Submission	2,036,418,134			
CAPEX				
Reporter proposed		-£728,781		
adjustment (£)				
NIW Adjustment (£)			£1,417,167	
Chandler KBS				£2,186,344
Adjustment (£)				

Appendix A

Chandler KBS RPA review report



PC21 Regional Price Adjustment Northern Ireland Water 30 November 2020





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Appendices

Appendix A -Data Sources



Version		Prepared by	Checked	Issue date
			Dy	
1	Draft	WH		
	23.11.2020 - internal review			
2	Draft Revision Rev 1	WH		
	24.11.2002 - comments from			
	S Walker			
3	Draft Revision Rev 2	WH		
	25.11.2020 - comments from			
	S Walker			
4	Draft Revision Rev 3	WH	J Gavigan	30/11/2020
	26.11.2020 - Final			



1. Executive Summary

ChandlerKBS has carried out an assessment of the proposed regional price adjustments (RPAS) that CEPA issued on 4 March 2019. The Utility Regulator (UR) intends to consider the RPAs as part of its forthcoming price control for NI Water (PC21).

Our assessment differs to CEPA in several areas as follows:

- The labour, plant & equipment, and material split from NI Water's PC21 IPAC report is calculated 43% labour, 17% plant and equipment, and 40% materials compared to CEPA's assumption of 40% labour, 20% plant and equipment, and 40% materials.
- The labour RPA, using the latest ASHE 2020 provisional data, is calculated as 92.02% in comparison to CEPA's calculation of 88%.
- The material RPA based upon assessment of NI Water's PC21 IPAC report is calculated to be 92.16% in comparison to CEPA's calculation of 89%.
- The overall RPA is calculated as 93.43% in comparison to the CEPA RPA of 91%.



2. Introduction

ChandlerKBS has been appointed to provide an independent assessment of the proposed regional price adjustments (RPAs) that CEPA issued on 4 March 2019. The Utility Regulator (UR) intends to consider the RPAs as part of its forthcoming price control for NI Water (PC21).

The RPA is intended to reflect the difference in capital costs for NI Water compared to the typical water and sewerage company in other regions of the UK. In December 2019, CEPA recommended the RPA of 91% for PC21, therefore advising that NI Water's capital costs were 9% lower than those incurred in the other UK regions. This is a significant reduction from the UR's previous determination of 93.8% at PC15. NI Water does not consider the RPA has changed by the amount that CEPA has concluded and require an assessment of the current industry trends for RPAs.

ChandlerKBS has previously provided cost benchmarking services to NI Water for PC21 and are familiar with NI Water's business planning processes and intelligent performance assessment centre (IPAC). We are well placed to support the assessment of the PC21 RPA through analysis of the IPAC costing breakdown and comparison with other UK water and sewerage companies.

This report summarises the findings of the assessment of the RPAs that are applicable to NI Water's PC21 Business Plan.



3. Approach

CEPA has estimated individual RPAs for the key resource categories of labour, plant & equipment, and materials. Individual RPAs have been combined to a single adjustment that is applied across all capital costs. CECA has assumed that capital costs comprise of 40% labour, 20% plant and equipment, and 40% materials.

CEPA has stated in its report Regional Price Adjustments PC21, 6 July 2020, that 'independently published regional indices are used where they exist' and, 'to the extent possible, specific weightings and sub-resource RPAs to distinguish between different categories and sub-categories of cost, but this is constrained by data availability. At a minimum the indices we use distinguish between Northern Ireland and the rest of the UK'.

ChandlerKBS has reviewed the split of labour, plant and equipment, and materials to determine whether the CEPA split is appropriate. We have subsequently reviewed the individual RPAs using NI Water's data, ChandlerKBS water industry data and published data from the Office for National Statistics Annual Survey of Hours and Earnings and Northern Ireland Statistics and Research Agency Annual Survey of Hours and Earnings to determine whether CEPA's assessments is appropriate for the forthcoming price control for NI Water (PC21).



4. Labour, Plant & Equipment, and Material Proportions

4.1. Source Information for the Assessment.

The proportions of labour, plant and equipment, and materials (LPM) were assessed using the investment category values in NI Water's PC21 IPAC report. Table 1 below identifies the PC21 costs split across civils, mechanical, electrical and ICA.

PC21 IPAC	Capex	Civil	Mech	Elect	ICA
Category					
Asset	£353,091,104	£135,265,290	£83,776,672	£64,316,712	£69,732,430
Infra	£499,416,642	£495,963,515	£2,430,627		£1,022,500
Land	£5,519,811	£5,519,811			
M&G	£140,667,413	£140,667,413			
OPEX					
Process	£76,459,548	£48,441,119	£13,440,331	£10,252,576	£4,325,522
Site General	£54,334,936	£54,323,327	£11,609		
SR Refurb	£11,581,963	£11,523,155	£55,208		£3,600
Unit	£264,774,002	£153,438,919	£64,302,543	£28,390,441	£18,642,099
Cap Sals	£116,897,585	£116,897,585			
Total	£1,522,743,004	£1,162,040,134	£164,016,990	£102,959,729	£93,726,151
Excl M&G, Cap Sals, Land	£1,259,658,195	£898,955,325	£164,016,990	£102,959,729	£93,726,151

Table 1 - PC21 costs split across civils, mechanical, electrical and ICA

It is noted that M&G, OPEX, Cap Sals and Land categories are excluded from the LPM assessment as they do not include any construction costs.



4.2. LPM Assessment Methodology.

The IPAC data was utilised together with ChandlerKBS' water industry data and estimators' judgement to derive LPM percentage proportions for each IPAC category suitable for the business planning process. Table 2 below identifies the estimated percentage proportions for the various categories of capital expenditure.

Category	Asset	Infra	Process	Site General	SR Refurb	Unit
Labour	20%	75%	20%	30%	50%	20%
Plant & Equipment	20%	10%	20%	40%	20%	20%
Material	60%	15%	60%	30%	30%	60%
Total	100%	100%	100%	100%	100%	100%

Table 2 - LPM Proportions for IPAC Categories

The estimated LPM proportions were subsequently applied to the IPAC categories to derive the associated costs. Table 3 below identifies the estimated split of PC21 costs for LPM.

Category	Asset	Infra	Process	Site	SR Refurb	Unit
				General		
Labour	£70,618,221	£374,562,482	£15,291,910	£16,300,481	£5,790,982	£52,954,800
Plant &	£70,618,221	£49,941,664	£15,291,910	£21,733,974	£2,316,393	£52,954,800
Equipment						
Material	£211,854,662	£74,912,496	£45,875,729	£16,300,481	£3,474,589	£158,864,401
Total	£353,091,104	£499,416,642	£76,459,548	£54,334,936	£11,581,963	£264,774,002

Table 3 - Estimated split of PC21 costs for LPM



4.3. LPM Assessment Results

Based upon the analysis, the total values of the LPM categories informed the overall LPM proportions as identified below in Table 4.

Category	Category Value	LPM Proportion
Labour	£535,518,875	42.51%
Plant & Equipment	£212,856,962	16.90%
Material	£511,282,358	40.59%
Total	£1,259,658,195	100.00%

Table 4 - LPM Percentage Split of Capital Costs

As illustrated in figure 1 below, the assessment indicates that the LPM proportions are comparable to the CEPA base model proportions of 40% for labour, 20% for plant and 40% for materials.



Figure 1 - Comparison of CEPA Base Model LPM Proportions with ChandlerKBS Assessment

The estimates of each category's LPM proportions have been assessed at a summary level. The NI Water business plan will realise LPM proportions that will differ from the LPM proportions proposed by both the CEPA base model and ChandlerKBS' water industry data. However, the variance between the two sets of LPM proportions is minor and within expectations.



5. Labour RPA Assessment

An assessment of the RPA for labour was carried out using the Office for National Statistics (ONS) Annual Survey of Hours and Earnings (ASHE) and Northern Ireland Statistics and Research Agency (NISRA) Annual Survey of Hours and Earnings (ASHE) to align with the CEPA proposal.

The 2019 and 2020 provisional ASHE reports from ONS and NISRA were used to assess the proposed adjustment by CEPA compared with the latest available information. The analysis was carried out for hourly rates, weekly rates and annual rates to provide further information for comparison and sensitivity checks.

The data sources for the assessment are found on the internet in the public domain. Further details on the data sources can be found in Appendix A - Data Sources.

5.1. Labour RPA Assessment Methodology.

In line with ONS guidance, the median ASHE values were used for the assessment of the labour RPA.

The labour categories used in the assessment were not changed from the CEPA base model and utilised the same SOC codes from the ASHE reports. There was no further data available for updating the proportion of each labour category. Therefore, the proportions were not changed from the CEPA base model as shown in the following Table 1 below:

ASHE Category (SOC Code)	Proportion of Labour
Man and Dir (11)	4%
Engineering Prof (21)	10%
Science Eng .(31)	4%
Admin (41)	2%
Skilled Construction (53)	56%
Plant etc Operatives (81)	16%
Elementary Trades (91)	8%

Table 1 - ASHE Proportion of Labour



5.2. Northern Ireland NISRA ASHE Data

Table 2 below includes the latest Northern Ireland NISRA ASHE Data:

		2019 ASHE Provisional			2020 /	ASHE Prov	visional
Category	Share	Hourly	Weekly	Annual	Hourly	Weekly	Annual
Man and Dir (11)	4.0%	£22.42	£837.80	£43,631	£22.06	£830.40	£46,435
Engineering Prof (21)	10.0%	£17.86	£644.10	£35,441	£18.66	£696.20	£37,421
Science Eng (31)	4.0%	£12.55	£450.10	£26,318	£12.50	£464.00	£25,136
Admin (41)	2.0%	£10.84	£388.00	£19,705	£10.87	£390.00	£20,377
Skilled Construction (53)	56.0%	£11.28	£441.20	£25,405	£11.45	£432.00	£26,719
Plant etc Operatives (81)	16.0%	£9.80	£389.50	£21,335	£10.39	£400.00	£23,327
Elementary Trades (91)	8.0%	£8.94	£340.00	£18,492	£8.86	£340.00	£17,128

Table 2 - Northern Ireland NISRA ASHE Data

5.3. UK ONS ASHE Data

Table 3 below contains the latest United Kingdom ONS ASHE Data:

		2019 ASHE Provisional			2020 A	SHE Prov	visional
Category	Share	Hourly	Weekly	Annual	Hourly	Weekly	Annual
Man and Dir (11)	4.0%	£22.86	£843.30	£43,913	£22.73	£819.70	£44,500
Engineering Prof (21)	10.0%	£21.42	£791.20	£41,897	£21.34	£781.10	£41,924
Science Eng(31)	4.0%	£14.31	£536.60	£29,031	£14.23	£527.80	£29,057
Admin (41)	2.0%	£11.71	£391.90	£20,218	£11.97	£392.90	£20,759
Skilled Construction (53)	56.0%	£13.13	£511.60	£27,828	£12.67	£491.50	£28,866
Plant Operatives (81)	16.0%	£10.64	£411.10	£23,135	£10.78	£409.40	£23,677
Elementary Trades (91)	8.0%	£9.44	£369.50	£20,482	£9.74	£373.90	£20,944

Table 3 - UK ONS ASHE Data



5.4. UK to Northern Ireland Labour RPA Adjustment

The labour rates for Norther Ireland were compared against UK labour rates as shown in Table 4 below:

		2019 ASHE Provisional			2020 ASHE Provisional		
Category	Share	Hourly	Weekly	Annual	Hourly	Weekly	Annual
Man and Dir(11)	4.0%	98.08%	99.35%	99.36%	97.05%	101.31%	104.35%
Engineering Prof (21)	10.0%	83.38%	81.41%	84.59%	87.44%	89.13%	89.26%
Science Eng (31)	4.0%	87.70%	83.88%	90.65%	87.84%	87.91%	86.51%
Admin (41)	2.0%	92.57%	99.00%	97.46%	90.81%	99.26%	98.16%
Skilled Construction (53)	56.0%	85.91%	86.24%	91.29%	90.37%	87.89%	92.56%
Plant etc Operatives (81)	16.0%	92.11%	94.75%	92.22%	96.38%	97.70%	98.52%
Elementary Trades (91)	8.0%	94.70%	92.02%	90.28%	90.97%	90.93%	81.78%
COMBINED ADJUSTMENT		88.04%	88.26%	91.11%	91.26%	90.60%	92.66%
2020 VARIANCE					+3.22%	+2.34%	+1.55%

Table 4 - UK to Northern Ireland Adjustment

The results show that there has been an increase in the Norther Ireland ASHE adjustments for 2020. Hourly and weekly wage adjustments were circa 88% for 2019 but have increased to circa 91% in 2020. The annual wage adjustment in 2019 was circa 91% but has increased to circa 93% in 2020. The hourly wage adjustment has the highest increase of 3.22%.

The CEPA base model utilised comparisons for hourly wage excluding overtime from the ASHE 2019 provisional data to estimate 88% RPA for labour. From our assessment of the



2019 provisional ASHE data, the combined adjustment for hourly rate was 88.04% which aligns with the labour RPA proposed by the CEPA base model.

As part of our sensitivity assessment for RPA, we considered the approach that CEPA used for a labour RPA for Ofwat from documents found in the public domain:

- The CEPA report to Ofwat, *PR19 Econometric Benchmarking Models* in March 2018 (available here: https://www.ofwat.gov.uk/wp-content/uploads/2018/03/CEPA-cost-assessment-report.pdf).
- Vivid Economics and Arup report in 2017 for United Utilities, Understanding the exogenous drivers of wholesale wastewater costs in England & Wales (available here: https://www.unitedutilities.com/globalassets/z_corporate-site/about-uspdfs/looking-to-the-future/understanding-the-exogenous-drivers-of-wholesalewastewater-costs-in-eng....pdf).

Both reports cited multiple reasons for not applying ASHE RPA to labour. The main reason stated that the labour adjustment did not significantly explain the variance in costs between regions.

It was also noted that in other reports, CEPA has favoured the All Employee, Median Hourly excluding overtime wage rates for labour RPA analysis. This is consistent with the labour RPA assessment for NI and we agree that this is the most relevant wage category to use from the ASHE labour data.

The CEPA base model assumes that 100% of labour will be sourced from the NI region. We do not consider this is accurate for NIW and does not align with other utility industry CEPA report assumptions, where a 70% local and 30% national RPA adjustment was tested to account for labour sourced from outside of the local region.

The CEPA base model accepted the labour RPA result from the 2019 provisional ASHE data as it aligned with the historical trend of labour adjustment for Northern Ireland compare to UK. However, the same methodology on the most recent ASHE data demonstrates that the trend of hourly, weekly and annual NI wages has changed compared to UK wages. The most recent 2020 provisional ASHE data shows a significant increase of 3.22% in adjustment for hourly wages.



Whilst there is no data available to apply an accurate adjustment for local labour proportion, we estimate that labour from within the local region will be lower than 100% but likely to be higher than 70%. We have therefore assumed that the remaining percentage of labour cost will have a 100% RPA. We estimated that the proportions of local labour are more likely to be closer to those in table 5 below:

		2019	2019 ASHE Provision 2020 ASHE Provisio			sional	
Category	Local Share	Hourly	Weekly	Annual	Hourly	Weekly	Annual
Man and Dir (11)	90.0%	98.27%	99.41%	99.42%	97.35%	101.17%	103.91%
Engineering Prof (21)	90.0%	85.04%	83.27%	86.13%	88.70%	90.22%	90.33%
Science Eng (31)	90.0%	88.93%	85.49%	91.59%	89.06%	89.12%	87.86%
Admin (41)	100.0%	92.57%	99.00%	97.46%	90.81%	99.26%	98.16%
Skilled Construction (53)	90.0%	87.32%	87.62%	92.16%	91.33%	89.10%	93.31%
Plant etc Operatives (81)	100.0%	92.11%	94.75%	92.22%	96.38%	97.70%	98.52%
Elementary Trades (91)	95.0%	94.97%	92.42%	90.77%	91.42%	91.39%	82.69%
Combined Adjustment		89.08%	89.32%	91.83%	92.02%	91.46%	93.30%
2020 Variance					+3.31%	+2.40%	+1.60%

Table 5 - Adjustment for Local Labour Share



5.5. Labour RPA Assessment Results.

To conclude our assessment of the labour RPA, we considered the most appropriate wage period to use. Our assessment of the industry standard approach identified the hourly wage excluding overtime RPA to be the most widely used. Table 6 below summarises the finalised labour RPA assessment.

Category		2019 Provisional	2020 Provisional	CEPA 2019 Provisional (for comparison)
Man and Dir (11)	Hourly	98.27%	97.35%	95%
Engineering Prof (21)	Hourly	85.04%	88.70%	83%
Science Eng (31)	Hourly	88.93%	89.06%	89%
Admin (41)	Hourly	92.57%	90.81%	94%
Skilled Construction (53)	Hourly	87.32%	91.33%	87%
Plant etc Operatives (81)	Hourly	92.11%	96.38%	92%
Elementary Trades (91)	Hourly	94.97%	91.42%	95%
Combined Adjustment		89.08%	92.02%	88%

Table 6 - Labour RPA Assessment

Table 6 shows provisional labour adjustments for 2019 and 2020 compared to the CEPA base model of 88%. Application of the adjustments derived from this assessment, as shown in Table 5, increases the 2019 Provisional ASHE adjustment to 89.08%. Utilising the same adjustment methods on the latest 2020 Provisional ASHE data increases the labour adjustment to 92.02%.



6. Plant and Equipment RPA Assessment

Plant and equipment items have been assessed by CEPA as being impacted by the same regional cost factors as other regions of the UK and therefore attracts a neutral RPA of 100%. This assessment is in line with our expectations for plant and equipment hence no further assessment was considered necessary.



7. Material RPA Assessment

7.1. Material RPA Assessment Methodology

Our assessment of the RPA for materials is based on the material proportion of the LPM estimated breakdown from the PC21 IPAC report. The material costs were further broken down into a list of specific materials to align with the CEPA base model. The breakdown of material costs was estimated based on ChandlerKBS industry data for similar categories for capital programmes of works.

CEPA assessed the material resource to be split into six categories:

- Concrete.
- Rebar.
- Pipes.
- Meters.
- Other.
- Disposal.

Our assessment found that the category for MEICA materials was not represented by the CEPA materials list. When the IPAC report was analysed for LPM proportions, it was estimated that MEICA materials accounted for the largest proportion of material costs. Therefore, our assessment of material RPA includes the MEICA material category. It was noted that CEPA included a category for Meters. We have therefore included meters within our MEICA category.

Based upon discussions with NI Water on the availability of regional MEICA supplies, it is estimated circa 75% of MEICA materials are imported to the region. To demonstrate the impact of the increase in cost of importing MEICA materials, the category was split into imported and local MEICA material categories.



7.2. IPAC Material Proportions

The estimated material proportions were allocated to the IPAC categories and CEPA base model material list with a modification for MEICA materials. Table 1 below shows an estimate of the % materials split for PC21.

Category	ASSET	INFRA	PROCESS	SITE GENERAL	SR REFURB	UNIT
Concrete	10.06%	6.52%	16.63%	32.81%	45.70%	15.21%
Rebar	3.35%	2.17%	5.54%	10.94%	15.23%	5.07%
Pipes	0.00%	60.82%	11.03%	0.00%	0.00%	11.03%
MEICA	40.49%	0.46%	24.05%	0.02%	0.34%	27.59%
(imported)						
MEICA	13.50%	0.15%	8.02%	0.01%	0.11%	9.20%
(local)						
Other	20.10%	17.38%	22.23%	43.72%	26.12%	19.40%
materials						
Disposal	12.50%	12.50%	12.50%	12.50%	12.50%	12.50%
Total	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%

Table 1 - Estimate of % Material Split for PC21

Applying the material percentages to the total material costs for each IPAC category derives the material costs as shown in Table 2 below:

Category	ASSET	INFRA	PROCESS	SITE GENERAL	SR REFURB	UNIT
Concrete	£21,312,579	£4,884,295	£7,629,134	£5,348,188	£1,587,887	£24,163,275
Rebar	£7,097,131	£1,625,601	£2,541,515	£1,783,273	£529,180	£8,054,425
Pipes	£0	£45,561,780	£5,060,093	£0	£0	£17,522,743
MEICA (imported)	£85,779,953	£344,597	£11,033,113	£3,260	£11,814	£43,830,688
MEICA (local)	£28,600,379	£112,369	£3,679,233	£1,630	£3,822	£14,615,525
Other materials	£42,582,787	£13,019,792	£10,198,175	£7,126,570	£907,563	£30,819,694
Disposal	£26,481,833	£9,364,062	£5,734,466	£2,037,560	£434,324	£19,858,050
Total	£211,854,662	£74,912,496	£45,875,729	£16,300,481	£3,474,589	£158,864,401

Table 2 - Estimate of Material Costs for PC21



The total cost of each material category has been converted to a percentage of the total material cost. We generally agree with the CEPA methodology for calculating the adjustment factors for material categories so have assumed the same adjustment factors used in the CEPA base model. For the MEICA material category, 75% of materials are estimated to be imported and incur a 5% higher cost than the UK average. The remaining 25% of locally sourced MEICA materials are estimated to have an RPA of 90%. Table 3 below shows the estimated split of materials costs for PC21 and resulting RPA adjustment.

Category	Total Material Value	% of total	Material RPA	Combined RPA
Concrete	£64,925,357.80	12.70%	65.00%	8.25%
Rebar	£21,631,125.37	4.23%	78.00%	3.30%
Pipes	£68,144,616.59	13.33%	100.00%	13.33%
MEICA (imported)	£141,003,425.05	27.58%	105.00%	28.96%
MEICA (local)	£47,012,958.62	9.20%	90.00%	8.28%
Other materials	£104,654,580.17	20.47%	90.00%	18.42%
Disposal	£63,910,294.80	12.50%	93.00%	11.63%
Total	£511,282,358.40	100.00%		92.16%

Table 3 - Estimated split of materials costs for PC21 and resulting RPA adjustment

7.3. Material RPA Assessment Results

To align our RPA assessment for materials with the CEPA base model, the RPA for imported and local MEICA have been combined. Table 4 below shows a comparison of our RPA assessment for materials to CEPA's RPA.

Category	% of total	Material RPA	Combined RPA	CEPA % of total	CEPA Material RPA	CEPA Combined RPA
Concrete	12.70%	65.00%	8.25%	15.00%	65.00%	9.75%
Rebar	4.23%	78.00%	3.30%	5.00%	78.00%	3.90%
Pipes	13.33%	100.00%	13.33%	35.00%	100.00%	35.00%
MEICA (combined)	36.77%	98.77%	37.23%	2.50%	100.00%	2.50%
Other materials	20.47%	90.00%	18.42%	30.00%	90.00%	27.00%
Disposal	12.50%	93.00%	11.63%	12.50%	93.00%	11.63%
Total	100.00%		92.16%	100.00%		89.78%

Table 4 - Comparison of RPA assessment for materials to CEPA



The proportions of materials in our assessment differ from the CEPA assessment for all categories. Concrete and Rebar are the closest in the comparison but our assessment of Pipes and MEICA vary significantly from the CEPA base model.

From our assessment of the PC21 IPAC report, MEICA materials have the highest proportion. The CEPA base model for meters is very low and does not represent the MEICA material proportion. The variance in the material category proportions for Pipes, Other-materials and MEICA is the main cause of the variance in the total combined material RPA.



8. Assessment Summary

Based upon our analysis of the LPM proportions, labour RPA, Plant & Equipment RPA and Material RPA, table 1 below provides a summary of our assessment of the overall RPA of 93.4% (6.6% gap to UK average capital costs) compared to the CEPA RPAs.

Category	Category Split	Category RPA	Final RPA	CEPA Category Split	CEPA Category RPA	CEPA RPA
Labour	42.51%	92.02%	39.12%	40.00%	88.58%	35%
Plant & Equipment	16.90%	100.00%	16.90%	20.00%	100.00%	20%
Material	40.59%	92.16%	37.41%	40.00%	89.78%	36%
Total	100.00%		93.43%	100.00%		91%

Table 1 - ChandlerKBS RPA Assessment Compared to CEPA

In summary, labour has increased due to the labour proportion and latest ASHE data being utilised, plant and equipment has decreased due to a lower assessment of the category split for PC21, and material has increased due to the material category proportions changing.



Appendix A

Data Sources



Northern Ireland ASHE Data Source.

The 2019 provisional data was taken from this website address.

 https://www.nisra.gov.uk/sites/nisra.gov.uk/files/publications/ODS-format-ASHEtables-2019-revised.zip

The tables utilised from this data source.

- Table 3 (NI).6a Hourly pay Excluding overtime (£) For all employee jobsa: Northern Ireland, 2019.
- Table 3 (NI).2a Weekly pay Excluding overtime (£) For all employee jobsa: Northern Ireland, 2019.
- Table 3 (NI).7a Annual pay Gross (£) For all employee jobsa: Northern Ireland, 2019.

The 2020 provisional data was taken from this website address.

 https://www.nisra.gov.uk/sites/nisra.gov.uk/files/publications/ODS-format-ASHEtables-2020.zip

The tables utilised from this data source.

- Table 3 (NI).6a Hourly pay Excluding overtime (£) For all employee jobsa: Northern Ireland, 2020.
- Table 3 (NI).2a Weekly pay Excluding overtime (£) For all employee jobsa: Northern Ireland, 2020.
- Table 3 (NI).7a Annual pay Gross (£) For all employee jobsa: Northern Ireland, 2020.

United Kingdom ASHE Data Source.

The 2019 provisional data was taken from this website address.

 https://www.ons.gov.uk/file?uri=%2femploymentandlabourmarket%2fpeopleinwork%2 fearningsandworkinghours%2fdatasets%2foccupation2digitsocashetable2%2f2019prov isional/table22019provisional.zip

The tables utilised from this data source.

- Table 2.6a Hourly pay Excluding overtime (£) For all employee jobsa: United Kingdom, 2019.
- Table 2.2a Weekly pay Excluding overtime (£) For all employee jobsa: United Kingdom, 2019.
- Table 2.7a Annual pay Gross (£) For all employee jobsa: United Kingdom, 2019.



The 2020 provisional data was taken from this website address.

 https://www.ons.gov.uk/file?uri=%2femploymentandlabourmarket%2fpeopleinwork%2 fearningsandworkinghours%2fdatasets%2foccupation2digitsocashetable2%2f2020prov isional/table22020provisional.zip

The tables utilised from this data source.

- Table 2.6a Hourly pay Excluding overtime (£) For all employee jobsa: United Kingdom, 2020.
- Table 2.2a Weekly pay Excluding overtime (£) For all employee jobsa: United Kingdom, 2020.
- Table 2.7a Annual pay Gross (£) For all employee jobsa: United Kingdom, 2020.

ONS Guidance.

ONS provides guidance for using the ASHE report which explains the use of median values versus mean values.

- Mean the mean is a measure of the average which is derived by summing the values for a given sample, and then dividing the sum by the number of observations (i.e. jobs) in the sample. In earnings distributions, the mean can be disproportionately influenced by a relatively small number of high-paying jobs.
- Median the median is the value below which 50% of jobs fall. It is ONS's preferred measure of average earnings as it is less affected by a relatively small number of very high earners and the skewed distribution of earnings. It therefore gives a better indication of typical pay than the mean.



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