


# Water and Sewerage Service Price Control 2013-2015

PC13 Annex A  
Special Factors - Draft Determination

September 2012



# Water and Sewerage Service Price Control 2013-15

## PC13 Special Factors

### Contents

<b>Executive Summary .....</b>	<b>2</b>
<b>1 Water Distribution .....</b>	<b>4</b>
1.1 Basis of Claim.....	4
1.2 Calculation of the Claim .....	4
1.3 Utility Regulator Views .....	6
1.4 Scale of Special Factor .....	9
1.5 Special Factor Methodology .....	10
<b>2 Power Costs .....</b>	<b>14</b>
2.1 Basis of Claim.....	14
2.2 Calculation of Claim.....	14
2.3 Utility Regulator Views.....	15
2.4 Scale of Special Factor .....	16
2.5 Determination .....	16
<b>3 Regional Wages – Scope Adjustment.....</b>	<b>19</b>
3.1 Basis of Claim.....	19
3.2 Calculation of Claim.....	19
3.3 Utility Regulator Views.....	20
3.4 Determination .....	21
<b>4 NDPB Status.....</b>	<b>23</b>
4.1 Basis of Issue .....	23
4.2 Utility Regulator Views.....	23
4.3 Scale of Special Factor .....	24
<b>5 Other Issues .....</b>	<b>27</b>
5.1 Special Factor Development.....	27

## Executive Summary

As part of the Price Control process (PC13) the Utility Regulator has the responsibility of setting efficiency targets. These targets are generated on the basis of:

- a) The efficiency gap between NI Water and the frontier companies;
- b) The rate of catch-up which is deemed achievable; and
- c) Efficiency improvements previously recorded and/or expected of benchmark performers.

The efficiency gap is calculated using the Ofwat efficiency models. The Utility Regulator employed these models in PC10 and has updated the findings using 2010-11 data. Targets are then set accordingly in order to try and narrow this gap.

Unfortunately the regressions will never be able to account for all the different factors that influence costs. Omitting variables can skew results. As a result, cost differentials can be viewed wrongly as differences in efficiency rather than actual operating environment disparities.

In order to correct for this, companies are given the opportunity to submit special factor claims. A special factor is a variable outside of management control which results in either higher or lower costs than comparators.

In order to be awarded a special factor, NI Water must adequately demonstrate:

- What is different about their circumstances which cause materially different costs outside management control?
- Why these differences result in cost variances?
- What is the net impact on costs over and above that which would have occurred had the factor not existed?
- What the company has done to mitigate against higher costs?

Since PC13 is only a two year price control, NI Water has opted to refresh and update the claims made in PC10<sup>1</sup>. This consists of claims for:

- a) Water distribution opex – This claim arises due to the inadequacy of the econometric model. NI Water has also cited extra costs arising from having much longer mains per property due to the rurality of Northern Ireland.

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<sup>1</sup> Details on the PC10 special factor claim and final determination can be found at:  
[http://www.uregni.gov.uk/uploads/publications/PC10\\_NIAUR\\_FD\\_Feb\\_10\\_-\\_Doc08\\_-\\_Annex\\_D2\\_Analysis\\_of\\_NI\\_Waters\\_Special\\_Factor\\_claims\\_-\\_Final.pdf](http://www.uregni.gov.uk/uploads/publications/PC10_NIAUR_FD_Feb_10_-_Doc08_-_Annex_D2_Analysis_of_NI_Waters_Special_Factor_claims_-_Final.pdf)

- b) Power costs – NI Water has argued for a special factor due to unavoidably high electricity costs. The company cited a lack of competition and market structure as reasons why costs are inflated in Northern Ireland.
- c) Regional wages – The company provided an assessment of the advantage they gain from operating in a low wage economy. This manifests itself in a negative special factor.

The amount claimed and the Utility Regulator's draft determination on special factors is provided in the table below.

**Table A – Claimed versus allowed special factors**

Special Factor	NI Water Claimed SF	UR Allowed SF
Water Distribution Econometric Model	£15.7m	£9.5m
Electricity Prices	£4.4m	£4.9m
Regional Wages	-£1.5m	-£1.8m
NDPB Status	£0.0m	£0.5m
<b>Total Special Factor</b>	<b>£18.6m</b>	<b>£13.1m</b>
<b>Percentage Special Factors Allowed at PC13</b>		<b>70.6%</b>

On the basis of the information provided, the Utility Regulator has determined a partial allowance of £13.1m. The rationale behind the allowance for each factor is summarised below.

1. Water distribution – The Utility Regulator remains uncertain about the scale and extent of rural distribution costs. However, a significant element of the claim has been approved. This reflects acceptance that the econometric model is not a good predictor of costs for NI Water.
2. Power costs – The Utility Regulator acknowledges that an unavoidable gap in electricity prices exists in Northern Ireland. This has been reflected in the proposed allowance.
3. Regional wages – The Utility Regulator has accepted the negative special factor offered up by NI Water in full. Some extra costs were provided due to a slight difference in process.
4. NDPB status – NI Water did not make a special factor adjustment for the extra costs they contend they incur in operating as a Non-Departmental Public Body. The Utility Regulator considers there is some merit in this special factor and is minded to make an allowance accordingly.

Full details and discussion of the special factors is provided in the remaining chapters.

# 1 Water Distribution

## 1.1 Basis of Claim

1.1.1 The largest special factor claimed by NI Water is for water distribution opex. The arguments and evidence provided reflects an update of their claim for PC10.<sup>2</sup> By way of summary, the company have argued the following:

- a) Ofwat's econometric model is based on the assumption that connection density drives opex i.e. higher connected urban areas cost more. NI Water has a very low connection density by virtue of geography. The efficiency model therefore unfairly generates a very low predicted cost relative to NI Water's actual distribution expenditure.
- b) Having a very long distribution network (NI Water mains per property are over twice the length of the E&W average) intuitively drives larger opex spend. This is not reflected in a higher predicted opex from the efficiency model.
- c) The length of the network means increased travel and contractor costs. Neither is separately identified within the efficiency model so that predicted opex is not as high as NI Water would claim it should be.
- d) Leakage detection costs are more expensive as they are much more difficult to detect in a rural environment.

1.1.2 The company reasoned that since the design of the distribution network is driven mainly by geographic and demographic variables, a special factor was merited.

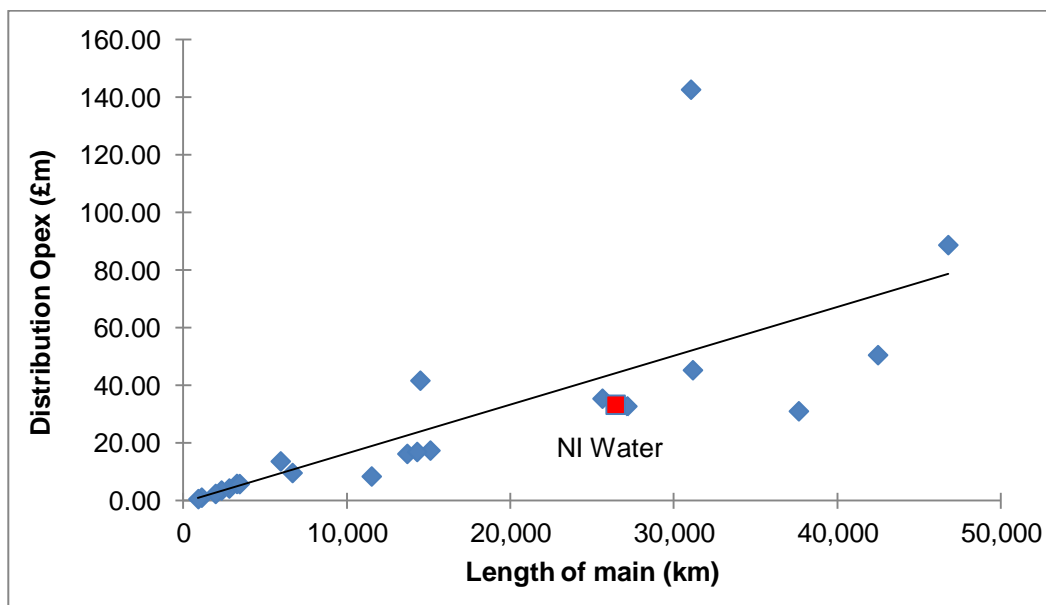
## 1.2 Calculation of the Claim

1.2.1 In order to calculate the extent of the special factor, NI water has used a unit cost model. The chosen model (£/km) is based on the premise that mains length is the key factor in determining opex. NI Water argues that any model which tries to assess distribution opex efficiency must take network size into account.

1.2.2 The relationship is illustrated in the graph below.

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<sup>2</sup> Since many of the initial arguments and responses are still valid, further in depth analysis of this issue can be found in the PC10 Final Determination, Annex D2.

**Figure 1.1 – Length of main as a driver for distribution opex**

- 1.2.3 NI Water used a benchmark £/km of main figure to generate a predicted cost for the company. The chosen unit cost is the average of three comparable companies (Wessex, Dwr Cymru and South West) who have rural networks somewhat akin to Northern Ireland. The calculation is summarised below.

**Table 1.1 – Calculation of NI Water special factor claim**

Special Factor Calculation	Values
Benchmark opex per km of main (three company average)	£1,034 / km
NI Water length of main	26,458 km
Predicted expenditure (using unit cost)	£27.34m
Predicted expenditure (using Ofwat model)	£11.65m
<b>Special Factor (difference between methods)</b>	<b>£15.7m</b>

*N.B. Figures may not sum due to rounding.*

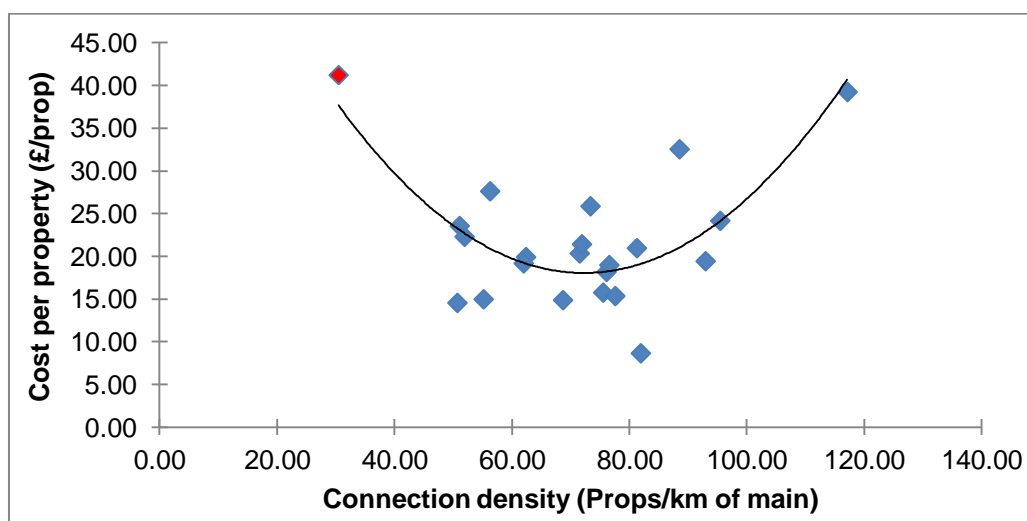
- 1.2.4 The company further provided evidence to demonstrate that the Ofwat explanatory variable (connection density) does not have a linear relationship with costs. Simply stated, NI Water is of the opinion that a U-shaped cost curve exists. This reflects the belief that both highly urban and sparsely populated networks can both drive higher distribution opex albeit via different means.

### 1.3 Utility Regulator Views

- 1.3.1 The Utility Regulator understands much of the logic NI Water has used with respect to this special factor claim. The company has proved that it has a different operating environment from its comparators, including Wessex and Welsh Water. There is also statistical evidence that the current econometric model is unsuitable. This point was identified and supported by the Reporter.
- 1.3.2 A model deficiency is not strictly speaking a special factor. It is however recognised that the model affects NI Water in particular, due to its mains length.
- 1.3.3 Setting aside the classification issue, it is accepted that an adjustment must be made. The Utility Regulator has followed the PC10 approach and accounted for this issue in the special factor process.
- 1.3.4 There remain some concerns about both the rationale and the scale of the special factor claimed. Taking each of the relevant points in order, the Utility Regulator has set out its views below.

#### Modelling Issues

- 1.3.5 The Utility Regulator accepts that the current efficiency model is not a good predictor of costs. The statistical significance of both the entire model and the independent variable illustrates a poor fit for the data, even when excluding outliers. Connection density cannot be relied upon to accurately predict efficient costs for NI Water. Consequently, an adjustment is required.
- 1.3.6 The modelling issue was recognised and discussed prior to PC13. It was agreed by both parties that the current regression would be retained in the interests of proportional effort.
- 1.3.7 NI Water has submitted a paper from Frontier Economics in support of their special factor claim. This paper details reasons why they consider costs of a rural network to be relatively higher. Frontier supports this by arguing for a U-shaped cost relationship for connection density i.e. higher costs for both rural and urban networks.

**Figure 1.2 – U-shaped cost curve for water distribution costs**

1.3.8 The Utility Regulator has a number of concerns with the model illustrated above. For instance:

- (a) When the two outliers corresponding to the points at both ends of the “U” (NI Water and Thames) are removed, the trend line shows very poor statistical fit for the data. This does not appear to be an improvement on the predictive power of the current model.
- (b) The model is not supported by the findings of NERA during PC10. They previously investigated the functional form of the water distribution model. NERA’s expert, Prof. Gordon Hughes concluded that a higher main per property was associated with a lower unit cost<sup>3</sup>.
- (c) NI Water has failed to fully detail the scale of additional costs that would support such a cost curve.
- (d) The company’s special factor claim has been based on the premise that the current model doesn’t take proper account of mains length. The U-shaped model fails to properly resolve this issue as the variables have not changed, only the ‘line-of-best-fit’.

1.3.9 The Utility Regulator is not convinced by the non-linear equation shown in Figure 1.2. However, there is recognition that a new specification must be sought in order to better predict distribution opex and efficiency at PC15.

<sup>3</sup> See [http://www.uregni.gov.uk/uploads/publications/PC10\\_NIAUR\\_FD\\_Feb\\_10\\_-\\_Doc10\\_-\\_Annex\\_E\\_NERA\\_NI\\_Waters\\_Comparative\\_Efficiency\\_-\\_Final.pdf](http://www.uregni.gov.uk/uploads/publications/PC10_NIAUR_FD_Feb_10_-_Doc10_-_Annex_E_NERA_NI_Waters_Comparative_Efficiency_-_Final.pdf)



## Travel Costs

- 1.3.10 The Utility Regulator accepts that there may be extra travel costs associated with a large network. NI Water has not however submitted any detail as to the scale of these costs. The Utility Regulator is of the opinion that these costs are likely to be relatively low given the small travel special factor claim submitted in PC10.

## Leakage and Contractor Costs

- 1.3.11 NI Water provided some evidence to illustrate that leakage detection contract rates are more expensive in rural than urban areas. Whilst this fact is accepted, this may also be the case for English and Welsh water companies.
- 1.3.12 It is not clear to the Utility Regulator the scale of the impact rural mains has on leakage costs. In an effort to establish this, comparisons were undertaken with Northumbrian Water. Northumbrian has a mains network very similar in length to NI Water but much higher connection density. Historic leakage opex for each company is provided below.

**Table 1.2 – Leakage opex comparison with Northumbrian Water (nominal)**

Leakage Opex	2007-08	2008-09	2009-10	2010-11	Average
NI Water Opex (£m)	£4.21m	£3.86m	£3.81m	£4.63m	£4.13m
Northumbrian Opex (£m)	£3.89m	£3.36m	£4.44m	n/a	£3.89m

Source: June Returns and Annual Information Returns – Table 35 commentary.

- 1.3.13 Comparisons of this nature are somewhat unreliable. A variety of different impacts could be at work such as efficiency levels, capitalisation policies etc. However, the table suggests that there is very little expenditure difference between the rural and more urban network of the same size.
- 1.3.14 Given that Northumbrian is both more efficient and has a lower proportion of leakage (as a percentage of distribution input), it might be expected that they would have lower costs anyway. The fact that there is so little difference implies that additional rural leakage costs are not obvious.
- 1.3.15 With respect to other contractor costs, the impact of the rural network is not clear. NI Water has failed to provide any evidence to support additional cost claims. The Utility Regulator is of the opinion that urban costs are still more influential.
- 1.3.16 This is borne out by the company's water main rehabilitation submission. Although this data refers to capital costs, NI Water have illustrated that rehab work unit rates are almost twice as expensive in urban locations.

- 1.3.17 The weight of evidence submitted suggests a special factor associated with long rural mains may exist. The scale of the impact is however open to debate and company views are not well supported.
- 1.3.18 An adjustment is required. However this appears to be due more to a poor econometric model rather than any additional rural costs evidence provided by NI Water.

## 1.4 Scale of Special Factor

- 1.4.1 Whilst accepting the need for a special factor, concerns remain about the scale of the amount claimed. In particular, this stems from unease about the use of the £/main unit cost.
- 1.4.2 NI Water has chosen this unit cost on the basis of the relationship between length of main and opex. However, there are three other scale variables that could legitimately be used i.e. connected properties, winter population and distribution input (DI). The Reporter also documented his concerns about using mains length as the cost driver without regard for location or mains size.
- 1.4.3 Each of the other variables has an intuitive relationship with distribution costs. Both DI and connected properties have been used as explanatory variables in previous versions of Ofwat's water distribution regression. Evidence shows that the alternatives have a much closer correlation with opex than mains length.
- 1.4.4 The problem is that each option provides very different predicted costs and therefore different special factors. Using the NI Water approach but with alternative unit costs gives substantially different results. This is shown in the table below.

**Table 1.3 – Comparison of different unit cost approaches**

	£/main	£/property	£/person	£/DI (ML)
Benchmark unit cost (three company average)	£1,034/km	£20.16/prop	£9.47/person	£96.46/ML
NI Water factor	26,458 km	806,400	1,814,340	625.15 ML/d
Predicted expenditure (using unit cost)	£27.34m	£16.26m	£17.18m	£22.01m
Predicted expenditure (using Ofwat model)	£11.65m	£11.65m	£11.65m	£11.65m
<b>Special Factor (difference between methods)</b>	<b>£15.69m</b>	<b>£4.61m</b>	<b>£5.53m</b>	<b>£10.36m</b>

*N.B. Figures may not add due to rounding*

- 1.4.5 It is the Utility Regulator's opinion that NI Water's methodology overstates the special factor, especially when compared to other unit cost results. Cost per main also provides a predicted expenditure which is almost the same as NI Water's actual costs (excluding atypical freeze thaw spend). Given the inefficiency observable in other areas of the company, this is an unlikely outcome.
- 1.4.6 The Utility Regulator is of the view that mains length is not the sole or even the most influential factor in determining opex costs. This is evidenced by the higher correlations with alternate variables.
- 1.4.7 The problem with adopting one of the other unit costs is that they each fail to take some account of mains length. Hence, a different approach is required.

## 1.5 Special Factor Methodology

- 1.5.1 In order to calculate the special factor for PC13, the Utility Regulator has taken on board the views of NI Water and Frontier Economics. They highlighted the following points:
  - 1. The UR's approach at PC10 was not appropriate. It failed to account for the fact that NI Water does not have an average connection density.
  - 2. Any model that assesses distribution opex efficiency needs to take mains length into consideration.
  - 3. The most logical way to estimate opex is to use both connected properties and mains length as explanatory variables.
- 1.5.2 The Utility Regulator accepts these points and has attempted to address them by adopting a composite scale variable (CSV) approach.

### Composite Scale Variable Approach

- 1.5.3 The main problem with including both mains length and the other appropriate variables in a regression is the fact they are highly correlated. This is called multicollinearity. It can result in large standard errors; unexpected coefficient signs and can multiply model bias if it exists.
- 1.5.4 These problems can be avoided by use of a CSV. In simple terms this means combining the correlated variables into one explanatory factor. The composite variable allows for the impact of mains length or population to be considered alongside connected properties, even though they are closely correlated.
- 1.5.5 Such techniques have previously been used by Ofgem across gas and electricity industries, and by the Utility Regulator in the recent RP5 draft determination on Northern Ireland Electricity.
- 1.5.6 The benefits of this approach are:

1. It avoids multicollinearity issues.
  2. Allows mains length to be given due consideration along with other relevant variables.
  3. Provides a robust model with a statistically significant explanatory variable.
- 1.5.7 The variable is constructed by including the relevant factors and weighting them. The separate weights shall sum to the value of 100%. Since four relevant variables have been identified and are correlated with opex, each shall be included. The CSV in this case is given by the formula below.

$$CSV = (connected\ props)^{\alpha} * (population)^{\beta} * (mains\ length)^{\gamma} * (DI)^{\delta}$$

$$\alpha + \beta + \gamma + \delta = 1$$

- 1.5.8 For the purpose of this variable the chosen weights are as follows:

**Table 1.4 – Weights of composite scale variable<sup>4</sup>**

Variable	Weight	Rationale
Connected properties ( $\alpha$ )	30%	Higher weighting reflects close correlation with opex.
Winter population ( $\beta$ )	30%	Higher weighting reflects close correlation with opex.
Length of mains ( $\gamma$ )	20%	Lower weight reflects lower correlation with opex.
Distribution input ( $\delta$ )	20%	Although DI has the closest relationship with opex, it is given a lower weight due to the impact of leakage. The model should not reward those who have higher usage by virtue of poor leakage prevention.

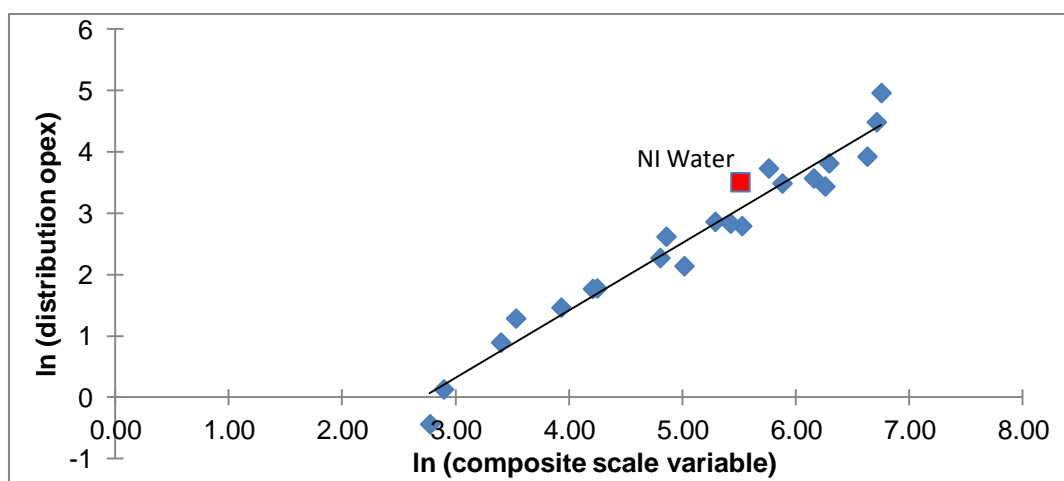
- 1.5.9 The Utility Regulator also investigated applying equal weights to the composite measures. Results were very similar but not quite as good statistically.
- 1.5.10 A regression was then run using distribution opex as the dependent and the CSV as the independent variable. Natural logs were used as a better fit for the data while NI Water was excluded from the regression. Model results are given in the table and figure below.

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<sup>4</sup> Inclusion of the *percentage of large mains* was investigated as a further possible element of the CSV. Running a regression with the five variable CSV (with equal weightings) gave results which were not quite as good as the proposed model i.e. lower R<sup>2</sup> and t-stat. The Regulator therefore decided not to implement this model. The model is robust and could be legitimately used if it is considered that the proportion of large mains is significant enough to merit inclusion.

**Table 1.5 – Water distribution model using CSV**

Water Service:	Water Distribution Expenditure	
Data:	June Returns and Annual Information Return	
Modelled cost:	ln (distribution functional expenditure less power costs [£m])	
Variables:	Coefficient	Standard Error
Constant	-2.958	0.272
ln (CSV)	1.090	0.052
Form of Model:	$\ln(\text{predicted cost}) = -2.958 + 1.090 * \ln\{\text{CSV}\}$	
Statistical Indicators:	Number of observations = 21	$R^2 = 0.958$
	Model standard error = 0.293	F test = 0.000

**Figure 1.3 – Water distribution model using CSV**

1.5.11 The results and graph illustrate that the model is robust and the composite variable is a good fit for the data. In their critique of Ofgem benchmarking, NERA defined 'robustness' as:

1. *The efficiency scores of a company should not fluctuate widely over short periods of time.*
2. *Adding or removing observations should not alter results significantly.*
3. *Results should not vary significantly due to subjective choices over the specification of the model or interpretation of the results.<sup>5</sup>*

<sup>5</sup> Review of Ofgem Benchmarking Studies, October 2007, p25, NERA

- 1.5.12 The Utility Regulator is of the opinion that these criteria are fulfilled. The model was found to produce similar results over time, when including NI Water or excluding Thames and when adjusting the CSV weightings.
- 1.5.13 Using this model allows the Utility Regulator to take due consideration of mains length as well as other relevant variables. The scale of the efficiency gap is also much more akin to the other models for NI Water.
- 1.5.14 Calculation of the draft determination special factor is therefore provided in the table below.

**Table 1.6 – Calculation of special factor allowance**

Special Factor Calculation	Values
Model formula	$\text{Ln}(y) = -2.958 + 1.090 * \text{ln}(\text{CSV})$
NI Water CSV	247.337
Predicted expenditure (using CSV model)	£21.13m
Predicted expenditure (using Ofwat model)	£11.65m
<b>Special Factor (difference between methods)</b>	<b>£9.5m</b>

*N.B. Figures may not sum due to rounding.*

- 1.5.15 The difference between the claimed and allowed amounts is detailed in the table below.

**Table 1.7 – Claimed versus allowed special factors**

Special Factor	NI Water Approach	UR Approach	Difference
Predicted expenditure	£27.34m	£21.13m	£6.21
Predicted expenditure (using Ofwat model)	£11.65m	£11.65m	£0.00m
<b>Special Factor</b>	<b>£15.7m</b>	<b>£9.5m</b>	<b>£6.2</b>

## 2 Power Costs

### 2.1 Basis of Claim

- 2.1.1 NI Water has made a special factor claim of £4.4m to account for higher industrial electricity prices in Northern Ireland. It is the company's contention that these costs are unavoidable and certainly outside reasonable management control. This is due to differences in the electricity markets of Northern Ireland and the rest of Britain.
- 2.1.2 The company highlighted a variety of factors which results in them incurring inflated electricity prices. These include:
- A lack of supplier competition in Northern Ireland compared with GB.
  - Lack of indigenous fossil fuels and overdependence on gas resulting in high generation costs.
  - Regulated charges which pass through to prices via the Single Electricity Market (SEM).
  - Different electricity tariff structures from those used in England, Scotland and Wales.
  - The nature of the NI Water network i.e. lots of smaller sites which incur higher tariffs.
- 2.1.3 As a consequence of these factors, the company is of the opinion that electricity prices will be more expensive than for other water utilities. Since the different procurement environment is outside management control, a special factor is merited.







### 2.2 Calculation of Claim

- 2.2.1 In order to determine the scale of the special factor, NI Water has adopted a similar approach to PC10. The company managed to gather information on electricity tariffs from six other water companies. The average E&W tariff has then been compared to the NI Water average price per unit (APPU) to generate the size of the price differential.
- 2.2.2 NI Water has used the 2011-12 figures to determine the difference in prices. This is considered a better approach as the gap in 2010-11 is artificially high since NI Water was locked into an expensive contract.
- 2.2.3 The difference has then been applied to NI Water's 2010-11 usage in order to generate the special factor. Finally an adjustment has been made to the special

factor for inefficiency<sup>6</sup>. This is representative of the fact that NI Water has yet to fully mitigate against the higher prices by lowering usage.

2.2.4 The company's special factor calculation process is set out in the table below.

**Table 2.1 – Power prices special factor calculation**

	Special Factor Inputs	Calculation	Figures
A	E&W companies APPU (2011-12)		
B	NI Water APPU (2011-12)		
C	Price Difference (%)	$(B-A) / A$	
D	NI Water Usage (2010-11)		
E	E&W average APPU (2010-11)		
F	Difference in Unit Price	$E * C$	
G	Special Factor	$D * F$	£5.6m
H	Inefficiency Adjustment		27.5%
I	<b>Final Special Factor</b>	$G / (1+H)$	<b>£4.4m</b>

*N.B. Figures may not sum due to rounding.*

## 2.3 Utility Regulator Views

2.3.1 The Utility Regulator is in agreement with many aspects of the claim. This position has not changed since PC10. In terms of electricity prices, there is recognition that Northern Ireland is more costly than Britain. In the quarterly Transparency Report, the Retail Directorate of the Utility Regulator stated:

*“Historically in NI, electricity prices have been higher than in GB. This is mainly because there are higher energy transport costs, small size of the market that reduces chances of economies of scale, differences in fuel mix etc.”<sup>7</sup>*

2.3.2 Although the quote refers to domestic prices, similar issues are found for industrial users. This supports some of the arguments put forward by NI Water. In particular, it is evident that there are more suppliers in GB and more competition.


<sup>6</sup> The 27.5% inefficiency adjustment has been derived from the water power econometric model.

<sup>7</sup> <http://www.uregni.gov.uk/uploads/publications/TransparRep2012Q1.pdf>



- 2.3.3 In relation to some of the other points, there is not the same certainty that local circumstances result in higher prices. However, it is accepted that a special factor exists which must be accounted for.







## 2.4 Scale of Special Factor

- 2.4.1 There are some concerns about NI Water's calculation of the electricity price difference of . Although it is difficult to access industrial prices, the company approach is open to some question.
- 2.4.2 By using data from the six companies and comparing with themselves, a number of issues arise. For instance, the Utility Regulator cannot have any certainty how efficiently both NI Water and its comparators are procuring power. This may lead to an inflated or deflated price gap depending on the chosen comparators.
- 2.4.3 A more appropriate approach would be to use independent average data. This was the case in PC10 when the Utility Regulator made use of CBI information. That said, the Reporter's audit of the PC13 Business Plan submission is of the view that, "robustness has been demonstrated" in the company's choice of power comparators. This provides some assurance that any major distortion has been avoided.

## 2.5 Determination

- 2.5.1 The Utility Regulator appreciates the difficulty accessing confidential non-domestic prices. A sense check of the data broadly confirms the scale of the electricity price gap in Northern Ireland. Some concern remains about whether NI Water has achieved an efficient price themselves. However, the Utility Regulator is minded to accept the proposed methodology.
- 2.5.2 The determination follows the same approach as NI Water. Slight differences result from the Utility Regulator amending the inefficiency adjustment and a change in the average price differential.
- 2.5.3 Calculation of the special factor determination is provided below.

**Table 2.2 – Power prices special factor determination**

	Special Factor Inputs	Calculation	Figures
A	E&W companies APPU (2011-12)		
B	NI Water APPU (2011-12)		
C	Price Difference (%)	$(B-A) / A$	
D	NI Water Usage (2010-11)		
E	E&W average APPU (2010-11)		
F	Difference in Unit Price	$E * C$	
G	Special Factor	$D * F$	£5.8m
H	Inefficiency Adjustment		18.6%
I	<b>Final Special Factor</b>	$G / (1+H)$	<b>£4.9m</b>

*N.B. Figures may not sum due to rounding.*

- 2.5.4 The Utility Regulator has revised the inefficiency adjustment downwards. This is to take account of the fact that the gap is partially due to the special factor rather than inefficiency. In 2010-11 the efficiency gap is impacted by three different variables;
- a) Electricity usage;
  - b) Higher prices due to the existing special factor; and
  - c) Higher prices due to NI Water locking into a fixed price contract at a time of high gas prices.
- 2.5.5 Since the Utility Regulator has some difficulty identifying the impact of these elements, an equal weighting has been given to each.
- 2.5.6 The inefficiency adjustment has therefore been reduced to 18.6% ( $27.8\% * 0.67$ ) for the special factor. This approach provides recognition that this element of the gap is unavoidable.
- 2.5.7 The calculations provide a total special factor allowance of £4.9m for water and sewerage.

**Table 2.3 – Claimed versus allowed special factor for power**

Power Special Factor	NI Water Claimed	UR Allowance	Difference
Special Factor	£4.4m	£4.9m	+ £0.5m

## 3 Regional Wages – Scope Adjustment

### 3.1 Basis of Claim

- 3.1.1 Following a similar approach to PC10, NI Water has made a scope adjustment for regional wages. This results in a negative special factor due to the advantage NI Water has operating in a low wage region of Britain.
- 3.1.2 The negative special factor adjusts NI Water costs upwards for the purposes of comparisons. The Utility Regulator considers this appropriate since the company benefits from an advantage due to location rather than management action.
- 3.1.3 As wages are generally lower than in the rest of the UK, a special factor is merited. Despite the claim, the company has voiced some concerns over the current approach. These include the following:
  - NI Water wage costs reflect that of a public sector organisation. Public sector wage rates are close to the UK average.
  - The use of private sector comparisons fails to account for the fact that it would in any case take time for NI Water to migrate staff onto equivalent private sector terms and conditions.
  - Ofwat do not apply negative wage adjustments.

### 3.2 Calculation of Claim

- 3.2.1 In order to calculate the wage adjustment, NI Water has benchmarked using ASHE (Annual Survey of Hours and Earnings) data. Following the previous year's approach, NI wages have been compared to Yorkshire and Humber and South West.
- 3.2.2 These regions represent the benchmark companies i.e. Yorkshire and Wessex Water. The Utility Regulator considers comparison with them to be appropriate. If comparisons were being made to the average a much larger negative special factor adjustment (circa 13%) would be merited.
- 3.2.3 Comparisons are based on the median hourly wage rate (excluding overtime) across all occupations, for full-time employees. The median was chosen as it is less impacted by outliers. Using a simple average would not however make much of a practical difference.
- 3.2.4 The percentage difference in wage costs is then applied to NI Water salaries. This provides the scope adjustment. In effect this calculation determines what wage costs would be for NI Water if they operated in the benchmark regions.

3.2.5 The approach used by NI Water is detailed in the following table.

**Table 3.1 – Regional wages negative special factor claim**

	Scope Adjustment Methodology	Calculation	Figures
A	Wage Rate in Y&H and South West		£11.54 per hour
B	Wage Rate in Northern Ireland		£11.14 per hour
C	Wage Differential	$(A - B) / B$	3.6%
D	NI Water Salary Costs (2010-11)		£41.9m
E	<b>Scope Adjustment</b>	<b>C * D</b>	<b>-£1.5m</b>

*N.B. Figures may not sum due to rounding.*

### 3.3 Utility Regulator Views

- 3.3.1 The Utility Regulator agrees that a scope adjustment should be made. Since NI Water benefits from operating in a low cost region, it is right to take this factor into account when benchmarking. There is also general agreement with the adopted company approach.
- 3.3.2 In addressing NI Water's concerns with the current approach, the Utility Regulator would make the following points:
- Whilst recognising the public sector history, the company has been operating as a GoCo since 2007. NI Water was provided significant transformation funding to make appropriate changes to business practices. Therefore a public sector comparison would not be appropriate.
  - It is accepted that it will take time to migrate to private sector practices. However, NI Water has completed pay and grading reviews and has been employing staff on their own terms and conditions for some time.
  - Evidence from ASHE on an industry basis would suggest that water and sewerage supply wage rate differences may be much greater (18.5% higher in the UK) than the determination allowance.
  - The Utility Regulator believes it is right to make a scope adjustment for wages even though Ofwat do not undertake such changes. This view is based on the fact that:
    - The special factor meets the criteria;
    - The issue is pronounced since Northern Ireland is one of the lowest pay regions; and

- Ofwat has made two way adjustments for the cost base and other pre-modelling adjustments, for example when modelling across comparators with different accounting treatments to leakage.

### 3.4 Determination

- 3.4.1 For the purpose of the Determination the Utility Regulator has followed the NI Water Business Plan approach. This is different from the PC10 methodology which focused on average salary differentials. Comparing against average UK wages would result in a much larger scope adjustment as wages are some 13% higher than NI at the average.
- 3.4.2 In the calculations there are some slight changes with respect to the wage differential based on latest ASHE data.
- 3.4.3 The final scope adjustment is also somewhat changed. This reflects the Utility Regulator calculating the special factor on a different modelled wage cost.
- 3.4.4 In reality the difference is quite small. The determined allowance is calculated in the table below.

**Table 3.2 – Regional wages negative special factor allowance**

	Scope Adjustment Methodology	Calculation	Figures
A	Wage Rate in Y&H and South West		£11.48 per hour
B	Wage Rate in Northern Ireland		£11.07 per hour
C	Wage Differential	$(A - B) / B$	3.7%
D	NI Water Salary Costs (2010-11)		£48.9m
E	Scope Adjustment	$C * D$	£-1.8m

*N.B. Figures may not sum due to rounding.*

- 3.4.5 The scope adjustment is larger than that proposed by NI Water. The principal reason is that the wage differential (3.7%) is applied to a higher wage cost. The difference in wages in large part reflects the inclusion of business activity salaries. This is however merely a process issue and not a material difference in views.
- 3.4.6 This approach mirrors that of previous years. A special factor is calculated for the entire business. Adjustment of special factors and atypical costs is then made at a later date to allow for the fact that business activity models are excluded.
- 3.4.7 By excluding business activity wages from salary costs, NI Water has simply adopted a slightly different process. Ultimately the scope adjustment will be of a similar magnitude.

- 3.4.8 Calculation of the salary costs used for the 2010-11 efficiency modelling is provided in the table below.

**Table 3.3 – NI Water salary costs used to calculate scope adjustment**

Salary costs used for efficiency gap modelling	Figures
NI Water Total Salaries (net of capitalisation)	£52.94m
Less Business Improvement Salaries	-£1.04m
Less VER/VS and Sundry Items	-£2.99m
<b>Modelled Salary Costs (2010-11)</b>	<b>£48.91m</b>

- 3.4.9 The draft determination claim and allowance is shown below.

**Table 3.4 – Claimed versus allowed special factor for regional wages**

Wages Special Factor	NI Water Claimed	UR Allowance	Difference
<b>Special Factor</b>	<b>-£1.5m</b>	<b>-£1.8m</b>	<b>-£0.3m</b>

## 4 NDPB Status

### 4.1 Basis of Issue

- 4.1.1 As part of the Business Plan submission NI Water made reference to the impact of operating as a Non-Departmental Public Body (NDPB). The company highlighted that having such status disadvantaged it compared to other private sector water companies.
- 4.1.2 No special factor was claimed for this issue. The company did however emphasise the cost this had on its business. NI Water stated the following negative impacts:
  - a) Additional governance burden resulting from the DRD Minister having to approve certain decisions before implementation.
  - b) Compliance burdens due to regulatory and government submissions.
  - c) Procurement restrictions in the form of 'green book' appraisals and onerous departmental approval processes.
  - d) Financial restrictions such as a lack of reserves and end year flexibility.
  - e) Limited control over employee terms and conditions.
- 4.1.3 As a consequence of these impacts the company has changed their planned trajectory of efficiency improvement. NI Water now believe that catch-up of 60% over ten years is possible. This doubles the timescale from the normal Ofwat catch-up of 60% over five years which was employed by the Utility Regulator at PC10.
- 4.1.4 The company has estimated the cost impact of NDPB status. NI Water values the operational burden at 10% of non-industrial staff time. This translates to a £3.5m additional cost.
- 4.1.5 The company have not made any claim for a special factor. Rather, they have changed the efficiency trajectory. This reflects the belief that their ability to change and improve is somewhat restricted.

### 4.2 Utility Regulator Views

- 4.2.1 The Utility Regulator recognises that the operational model in which NI Water works is not typical. It is evident that they incur extra costs which private companies would not. A corporate structure which complies with government and regulatory rules will have extra compliance costs.



- 4.2.2 Since the governance model is beyond management control, this would fall into the category of a special factor. NI Water has not submitted a claim but has valued the additional cost at £3.5m.
- 4.2.3 In terms of the adopted approach, the Utility Regulator does not feel that moving to a 60% opex catch-up over 10 years is appropriate. This is based on the following reasons:
1. NI Water has failed to provide appropriate detail to support such a change.
  2. No regulatory precedent has been offered in support.
  3. The company has significant flexibility in terms of tackling opex efficiency by virtue of business improvement and retirement funding.
  4. Majority of opex is repetitive in nature and largely unaffected by NDPB status.
  5. NI Water is projecting outperformance and significant opex efficiency gains in PC10 in spite of the corporate structure.
  6. Evidence from evaluative studies of other utility price controls shows that bigger efficiency challenges are achievable from the second rather than the first price control applying.<sup>8</sup>
- 4.2.4 The Utility Regulator does consider that a special factor should be allowed for the extra compliance burdens.

### 4.3 Scale of Special Factor

- 4.3.1 NI Water's assumption of additional operational costs is £3.5m. This is based on 10% of non-industrial staff time being devoted to work derived from NDPB status. In 2010-11 the company reported total employees as 1,351 of which 795 were non-industrial<sup>9</sup>.
- 4.3.2 The assumption means that almost 80 extra full time equivalent (FTE) jobs are generated due to the current corporate arrangements. An allowance of 80 staff would be similar in size to the entire Finance and Regulation (F&R) directorate. The Utility Regulator does not consider this to be a reasonable estimate of the NDPB impact.
- 4.3.3 The Utility Regulator has no clear idea of extra costs incurred. There is evidence of extra compliance activity. This takes the form of answering Assembly Questions, FOI requests and returns to the DRD and the Regional Development Committee.

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<sup>8</sup> <http://www.rail-reg.gov.uk/upload/pdf/pr08-oxeraeffic-160408.pdf>

<sup>9</sup> Source: NI Water Annual Report

- 4.3.4 It remains unclear how much opex is affected. There is also the issue whether or not comparator companies must undertake other forms of corporate compliance activities, especially around the maintenance of investors' confidence, in place of those NI Water must deliver.
- 4.3.5 Some precedent is found with Scottish Water. They made a special factor claim for £0.25m (2003-04 prices) of extra opex as a result of their status as a public body. In particular they cited extra costs to comply with FOI requests and responding to political queries.
- 4.3.6 In their SR06 Draft Determination the Water Industry Commission for Scotland (WICS) stated;
- "Scottish Water does not seem to have recognised the extent of the costs that are incurred by a privatised company in dealing with shareholders, multiple debt providers and credit rating agencies. We consider that managing external relations is a task that all companies must undertake and that Scottish Water does not face exceptional costs in this area."*<sup>10</sup>
- 4.3.7 Scottish Water was given no allowance for such costs in the Final Determination.
- 4.3.8 The Utility Regulator is of the opinion that some allowance should be made for NI Water as their situation is different again from Scottish Water. NI Water still has shareholder responsibilities as well as public body costs. The Utility Regulator does not however consider these costs to be material.
- 4.3.9 In the absence of specific detail, the Utility Regulator has had to make assumptions in order to determine a special factor.
- 4.3.10 In PC10 the company made a bid for a Corporate Programme Office (CPO). This office was designed to manage the business improvement and efficiency schemes. The function was to be comprised of a staff of 12 FTE's.
- 4.3.11 The Utility Regulator considers that a similar level of staff should be able to manage additional NDPB work requests. Some assurance is provided by the fact that the allowance is higher than the Scottish Water special factor claim. The table below details the impact this has on costs.

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<sup>10</sup> <http://www.watercommission.co.uk/UserFiles/Documents/WICSVOL6.pdf>

**Table 4.1 – Determination of NDPB special Factor**

NDPB Special Factor Calculation		Calculation	Figures
A	NI Water Salary Cost Assumption (NDPB)		£3.50m
B	NI Water Staff Assumption (NDPB)		80 FTE's
C	Cost per Person	A / B	£43,750
D	Utility Regulator Allowance		12 FTE's
E	<b>NDPB Special Factor</b>	<b>C * D</b>	<b>£0.53m</b>

4.3.12 It is accepted that the allowance is based on anecdotal evidence alone. The Utility Regulator would welcome extra detail from the company in order to determine a more robust cost impact of NDPB governance.

## 5 Other Issues

### 5.1 Special Factor Development

- 5.1.1 There may be other special factors which have yet to be determined. The scope of this two year price control is somewhat limited. Consequently, neither the company nor the Utility Regulator has pursued new special factors.
- 5.1.2 It is NI Water's opinion that a special factor may exist for the sewerage network. The Utility Regulator has considered a possible special factor for water resources and treatment. A negative scope adjustment would also be justified to account for the lower level of service provided to NI customers.
- 5.1.3 These issues and the development of efficiency analysis will be investigated and further developed in the next price control (PC15). For the moment, we have assumed the net impacts from the additional special factors discussed above would be nil for the purpose of PC13.

