

Anglian Water 13C. PC MARGINAL BENEFIT MAPPING



Anglian Water

PC Marginal Benefit Mapping

August 2018



PC benefit mapping calculations

1 Review of Anglian Water calculations

Anglian Water is required to estimate marginal benefits for its performance commitments. This is particularly important for those performance commitments with financial incentives. Marginal benefits are used to assess cost benefit and to support the incentive rates for under and outperformance penalty levels.

As is common in the industry, Anglian Water calculate customer valuations for service improvements at a granular level, and then aggregate to form marginal benefits at performance commitment level. As a check on its calculations undertaken Anglian Water asked ICS Consulting to review and challenge the development of marginal benefits.

The scope of the assurance requested by Anglian Water has been to:

- Test the reasonableness of approach taken to estimate marginal benefits.
- Review and challenge the assumptions used to estimate performance for the marginal benefit calculations, including the accuracy of the calculations.

The computations have been summarised in a spreadsheet provided by Anglian Water. This note summarises the findings from reviewing the spreadsheet.

It should be stressed that our review has been confined to those performance commitments in the spreadsheet provided. We have not assured any performance commitments valuations other than the ones identified in this note.

2 Performance commitments

2.1 Water Quality Contacts

The benefits for reducing water quality contacts takes into account the different severities of aesthetic water quality issues.

The approach used by Anglian Water rightly balances taste & odour and discoloration issues using historical data.

Whilst the calculations are overly complicated, the results are correct on the spreadsheet.

However, we note that the analysis considers one-off events only and ignores persistent issues. We challenged Anglian Water about whether some of the reduction in contacts would be around persistent issues. Anglian Water confirmed there are areas with persistent issues that will be subject to investment in the next AMP, in line with DWI undertakings. However, Anglian Water has confirmed they have processes in place to engage and communicate effectively with these those customers and these will continue throughout this AMP and the next. Accordingly these areas do not have material impact on water quality contacts, and one-off valuations are the most appropriate to use to value this performance commitment. On that basis we have no issues with the estimation of marginal benefits for this PC.

2.2 Abstraction Incentive Mechanism (AIM)

We have reviewed the calculations for the abstraction incentive mechanism mapping. The mapping involves linking water level and flow valuations from the customer engagement programme to AIM at a site level.

We see no issues with the way this approach has been developed and applied.

2.3 Reactive Mains Burst / Mains Bursts

Anglian Water have linked the valuation of bursts to the leakage and the supply interruptions that may result. We see no issue in the calculations that they have undertaken.

We have challenged them to ensure there is no double count and overlap of valuations, and they have assured us that the final numbers they will use in their ODI reflects this. We have no further comments on this measure.

2.4 Compliance Risk Index (CRI)

Anglian Water have linked the valuation for CRI to boil water notices. We think it is correct to link CRI to societal valuations rather than ask customers directly about this measure. Anglian Water has considered boil water notices at a site and parameter level and we see no issue with calculations.

2.5 Sewer collapses

Anglian Water have linked the value of sewer collapses to the impact on the customer in terms of internal flooding, external flooding and pollution. This is based on historical data.

We see no issues with the way this has been undertaken as this is based on historical data. As with mains bursts, we challenged Anglian Water to ensure there is no overlap or double count of benefits, and they assured us that in the final ODI's this has been taken into account.

We have no further comments on this measure.

2.6 Treatment Works Compliance

Treatment works compliance has been linked to societal valuations for a range of wastewater compliance incidents. We see no issue with the calculations.

2.7 Water Industry National Environmental Program (WINEP)

The WINEP programme has been linked to river water quality in terms of kilometres improved, given the number of obligations. We see no issues with the approach.

2.8 Water Supply Interruptions

The value of the average supply interruption greater than three hours in minutes per property has been linked to the individual values of unplanned interruption duration bands - from the shorter 0-3 hour duration band through to 3 weeks or more.

Anglian Water have used company data to assess the chance of any interruption being in any of those bands using company data; and have computed the average property minute based on the mid-point of the band. We see no issue with this approach. Given historical data shows that 1-4 days is the highest duration band, in reality this measure is linked durations of less than 4 days; which means there is no risk of overlap or duplication with the resilience measure around single supplies.

2.9 Pollutions

Anglian Water has linked the value of 1-3 category pollution incidents per 10,000km wastewater network to each of the individual categories of wastewater pollution incidents using historical data on the proportions experienced historically. This has been normalised using the length of sewers.

We see no issue with this calculation.

2.10 Per capita consumption

Per capita consumption has been linked to the value of reducing demand/customer usage. Anglian Water has worked out the total Ml/d of each person per household saving 1 litre per day.

However, we noted that the spreadsheet provided was scaled by the average water saving expected over the AMP. This has had the impact of increasing the valuation by a factor of six. We have discussed this with Anglian Water and they have recognised that the valuation does reflect the value of 6l/h/d not 1l/h/d, and have made changes to the calculation. We have confirmed the change has been made.

We have no further comment on this measure.

2.11 Resilience - % of population supplied by single supply system.

Anglian Water has linked this resilience measure to different durations of supply interruptions and boil water notices. They correctly estimate the chance of each of duration bands occurring, for example, assuming that a 21-day interruption or more could only happen with a 1 in 1000 risk. These values have been used to estimate the total value of a property affected and then scale to 1% of properties. We support the approach and do not have any comments on results.

We note that there is no overlap with the supply interruption performance commitment.

2.12 Leakage

Anglian Water have linked the leakage performance commitment to the leakage valuation from the customer engagement programme. We see no issues with this approach.

We do note that Anglian Water has valuations for leakage which vary according to the level of leakage, and this should be taken to account when setting the incentive rates for ODIs.

2.13 Bathing Water Quality.

This performance commitment is the % of bathing waters attaining excellent status. Anglian Water has linked this performance commitment to societal valuations for changing bathing water quality from good, sufficient or poor to excellent. They have used company data to understand the proportional change required in each status to produce a weighted average of moving any one bathing water to excellent. We see no issues with this approach.

2.14 Internal Sewer Flooding

The number of incidents per year has been linked to societal valuations for domestic and non-domestic properties subject to internal flooding. Anglian Water correctly uses historical data on the number of incidents affecting households and non-households to estimate the weighted average per incident. We see no issues with this approach.

2.15 External Sewer Flooding

The number of incidents is linked to societal evaluations for external sewer flooding of domestic curtilages and commercial industrial buildings. Anglian Water correctly exclude any non-private land from this calculation. They use company data to work out a weighted average of a typical external flooding event given historical data.

We note that the calculation presents the finding as value per external flooding area, whereas it is the value for private land or gardens. Renaming this would ensure there is no confusion about whether highways or public areas have been included.

2.16 Resilience Risk of Sewer Flooding in a Storm

The percentage of the population at risk of sewer flooding in a 1 in 50 year storm has been linked to the internal and external sewer flooding categories. Company data on the number of internal and external incidents has been used to estimate the weighted average of a property affected.

The only issue we see in the calculations is that it has not been scaled for the level of risk. We have discussed this with Anglian Water and they recognise that they have not scaled the marginal benefit to reflect the level of risk of these events; and they will make adjustments.

3 Conclusions

The scope of this review has been to confirm the mapping of individual triangulated customer values used in decision support tools through to the performance commitments which are then used to support ODI development.

The output of this review has shown that Anglian Water has followed a very thorough and detailed approach which is consistent with industry best practice and historical data to make those linkages.

During the process of reviewing the computations we have found few issues. These have been discussed with Anglian Water and updated accordingly. We have confirmed the changes have been made. Accordingly, we have no hesitation in confirming that the approach to estimating marginal benefits for the performance measures in the spreadsheet are correct.