SRN55 Affordability Model Methodology Technical Annex

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Version 1.0

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1. Introduction

1.1. Objective

We have generated a model to provide us with an understanding of our customers with affordability issues. In line with Ofwat PR24 methodology,[1] customers are assumed to have affordability issues if their bill is:

- =>5% of a customer's disposable income for dual service customers
- ->3.2% of a customer's disposable income for wastewater only customers
- =>1.8% of a customer's disposable income for water only customers

These customers are counted as affordability customers in the tables below.

Affordability remains an issue for many customers, not only those struggling to pay their bills. This model will help us understand affordability concerns for both current and future customers. It will support the evidence for the effectiveness of the company's approach and the efficiency of the approach.

The model will also support the targeted intervention strategy being developed and it will demonstrate the effectiveness/outcome of our affordability provision from PR19 - establishing the bill reductions and average bill to income ratio for customers supported etc.

In AMP7 the affordability proposition was to initiate a Targeted Intervention Strategy to support 128,000 customers. The output of the model will provide a source of input as to the direction we want this proposition to take in PR24.

This technical annex provides supporting information for the following data tables and chapters of the business plan:

Data tables	SUP15	Overall outcome performance
Chapters	SRN08: Affordability	

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2. Structure of our model

The structure of the model is within Excel. It uses ~80% of customers within the Southern Water area to understand the total amount of affordability customers within the area. There are 3 spreadsheets for each different type of customer – Water only, Wastewater only and dual service customers. Each spreadsheet contains source data from the billing system as described in data definitions, this data is used to calculate the annual charge for each customer.

We have acquired estimated income data for each customer from ████████. This income data has been used to calculate the bill to income ratio; this is done annually from 2022 to 2030 and periodically up to 2045. All 3 spreadsheets have this ratio calculation within it. Further, each income and each charge is shown for every year from 2022 to 2030 and periodically up to 2045. The income forecasts are from ████████, and the bill forecasts for this AMP are from our forecasts, and are dependent on our allowed revenues and a future forecast of revenues for 2025-30. Bill forecasts done from 2030 to 2045 are done through inflation forecasts.

The output spreadsheet is an accumulation of the 3 main spreadsheets and it will sum up and average all the ratios and affordability outputs as described in the output section and the data provided will be as described in the data definitions for output.

3. Data Definitions

The table below shows our variable definitions.

Table 1: Variable definitions

Name	Description	Location	Source
Premise ID	Unique Identifier	Affordability dataset	Billings system
CA	Contract Account (unique identifier 2)	Affordability dataset	Billings system
County	Address	Affordability dataset	Billings system
Household equivalised Income band	Income band generated from ████████ base data and modelled data	Affordability dataset	████████
Rate category	Type of tariffs as described in the rate categories spreadsheet	Affordability dataset	Billings system
Assessed annual volume	For unmetered customer an assessed volume of water is estimated, dependant on the number of bedrooms	Affordability dataset	Billings system
RV	The rateable value of each property set by the valuation office agency	Affordability dataset	Billings system
Essential flag	Whether a customer is on the essential scheme or not	Affordability dataset	Billings system

Name	Description	Location	Source
Essential discount	The amount of discount on the tariff a customer on the essential tariff receives	Affordability dataset	Billings system
Pro-rata annual water volume	The forecasted volume of water used for each customer	Affordability dataset	Billings system
Household equivalised Income	Income generated from ████████ base data and modelled data	Affordability dataset	████████
All years calculations			
Name	Description	Location	Source
Current year 22-23 – equivalised Income	Income multiplied by income growth metric	Affordability model - calculations	Calculation
22-23 Charges	Dataset	Affordability model - calculations	Dataset
Charges with support	Dataset	Affordability model - calculations	Dataset
Bill to Income all charges	22-23 Charges/22-23 equivalised income	Affordability model - calculations	Calculation
Bill to Income all charges with support	Charges with support 22-23 equivalised income	Affordability model - calculations	Calculation

4. Assumptions

The main assumptions we have made in developing the model are:

- Calculating the customer charge, there are a number of customers excluded who are on more unique tariffs or are not typical households - these have been excluded as they are not material.

- Calculating the customer charge, the charge generated is an assumption on pro-rate volumes

- The income data provided has unmatched data, therefore these customers are not included in the dataset

- The income data, is an approximation provided from ████████ grouping customers into 9 different income ranges for equivalised income. It was developed from base data of 85,000 surveys from ████████, predictive modelled data from different ████████ demographic models, indices of multiple deprivation and census figures

- The future income forecasts are acquired from ████████, and are an assumption of what customer's future income would be – these forecasts are performed for each county within our area and for each income decile.

- The bill forecast is an assumption dependant on our revenue allowances for this AMP and an assumption for 2020-2025 based on early modelling.

- The NewStart scheme and Water Direct scheme are not included in the number of customers with affordability problems due to how these customers are put on the schemes

- The average bills are not reflective of the average bills of Ofwat's definition, they are the average bill of all customers within the models

- Given this model uses 80% of our customers, the number of affordability customers has been proportionally uplifted to account for the actual amount of customers we serve

5. Model Outputs

5.1 Outputs before applying innovative tariffs

The tables below show the outputs of each model, before applying innovative tariffs.

Table 2: Model outputs before applying innovative tariffs – water only customers

£ in nominal prices	2025/26	2026/27	2027/28	2028/29	2029/30	2034/35	2039/40	2044/45
Average bill (£)	381	406	452	471	485	491	567	657
Average equivalised income (£)	36,169	37,705	39,250	40,815	42,303	50,620	60,665	72,736
Average bill to income (%)	1.35%	1.39%	1.48%	1.48%	1.47%	1.23%	1.16%	1.11%
Affordability customers (number)	37,616	39,887	46,661	46,679	45,589	27,832	22,501	18,010

Table 3: Model outputs before applying innovative tariffs – wastewater only customers

£ in nominal prices	2025/26	2026/27	2027/28	2028/29	2029/30	2034/35	2039/40	2044/45
Average bill (£)	385	426	525	572	606	717	902	1,137
Average equivalised income (£)	44,769	46,746	48,706	50,677	52,535	62,948	75,542	90,636
Average bill to income (%)	1.1%	1.2%	1.4%	1.5%	1.5%	1.5%	1.5%	1.6%
Affordability customers (number)	12,753	14,419	19,880	21,848	22,761	22,184	24,044	26,160

Table 4: Model outputs before applying innovative tariffs – dual customers

£ in nominal prices	2025/26	2026/27	2027/28	2028/29	2029/30	2034/35	2039/40	2044/45
Average bill (£)	646	699	817	871	910	1,001	1,215	1,479
Average equivalised income (£)	35,703	37,247	38,799	40,376	41,879	50,296	60,491	72,739
Average bill to income (%)	2.4%	2.5%	2.8%	2.8%	2.8%	2.6%	2.6%	2.5%
Affordability customers (number)	64,958	71,882	94,648	99,967	100,996	78,528	75,525	72,670

5.2   Outputs after applying innovative tariffs

The tables below show the outputs of each model, after applying innovative tariffs.

Table 5: Model outputs after applying innovative tariffs – water only customers

£ in nominal prices	2025/26	2026/27	2027/28	2028/29	2029/30	2034/35	2039/40	2044/45
Average bill (£)	384	395	433	443	448	491	569	660
Average equivalised income (£)	36,169	37,705	39,250	40,815	42,303	50,620	60,665	72,736
Average bill to income (%)	1.4%	1.3%	1.4%	1.4%	1.4%	1.2%	1.2%	1.1%
Affordability customers (number)	37,813	37,463	42,400	40,839	38,497	27,863	22,550	18,087

Table 6: Model outputs after applying innovative tariffs – wastewater only customers

£ in nominal prices	2025/26	2026/27	2027/28	2028/29	2029/30	2034/35	2039/40	2044/45
Average bill (£)	385	424	520	566	597	717	902	1,137
Average equivalised income (£)	44,769	46,746	48,706	50,677	52,535	62,948	75,542	90,636
Average bill to income (%)	1.1%	1.2%	1.4%	1.5%	1.5%	1.5%	1.5%	1.6%
Affordability customers (number)	12,751	14,237	19,541	21,424	22,149	22,184	24,044	26,160

Table 7: Model outputs after applying innovative tariffs – dual customers

£ in nominal prices	2025/26	2026/27	2027/28	2028/29	2029/30	2034/35	2039/40	2044/45
Average bill (£)	646	686	796	842	872	1,001	1,215	1,479
Average equivalised income (£)	35,703	37,247	38,799	40,376	41,879	50,296	60,491	72,739
Average bill to income (%)	2.37%	2.43%	2.70%	2.74%	2.73%	2.57%	2.56%	2.54%
Affordability customers (number)	64,953	68,919	89,293	92,627	91,867	78,528	75,525	72,670