Market Code Schedule 23

Code Subsidiary Document No. 0207

RF Charge Calculation, Allocation and Aggregation

Version 1.0

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Change History

Version Number	Date of Issue	Reason for Change	Change Control Reference	Sections Affected
1.0	29/03/2010	New Release for RF Calculation	MCCP046-CC	All

Contents

1. Purpose and Scope

1.1. Introduction

1.1.1.   The purpose of this document is to provide details of how the CMA will calculate the Primary Charges for Water and Sewerage in accordance with the Scottish Water Wholesale Charges Scheme and allocate them to the appropriate Licensed Provider for the Tariff Year Settlement Run (RF). For the avoidance of doubt, no calculations are carried out in respect of the Non-Primary components of the Wholesale Charges.

1.1.2.   This document describes a detailed charge calculation process which forms the CMA's interpretation of the Scottish Water Wholesale Charges Scheme (WCS) for the Financial Years 2008-09, 2009-10 and 2010-11. Specific assumptions in respect of how the calculation implements the Wholesale Charges Scheme are documented in the Appendix to both provide transparency and to formalise their adoption.

1.1.3.   The process will also calculate the Primary Charges for Water and Sewerage for years beyond 2010-11 provided that the form of the Charges described in the WCS does not diverge from the form of the Charges for the three financial years 2008-09 to 2010-11, and that the Charges can be successfully paramaterised.

1.1.4.   Details of how the CMA will calculate the Trade Effluent components of the Primary Charges for Sewerage and allocate them to the appropriate Licensed Provider are provided in CSD0206.

1.1.5.   The process (including the process in respect of Trade Effluent Charges) will be a complete re-calculation based upon the data submitted by the Market Participants and as it exists in the Central Systems at the time of the RF Settlement Run. The process assumes that data has been correctly submitted, and does not necessarily fully describe situations where either incomplete or inconsistent data has been submitted by Market Participants.

1.2. Scheme of Charges

1.2.1.   The process details the computation, allocation and aggregation of the various components of the Primary Charges described in the WCS. The various components of the Services are shown in the following table.

	Overview of Wholesale Charges Components		
SERVICE	COMPONENT	SUB-COMPONENT	SERVICE-ELEMENT
Primary Water Charges	Water Charges	Measured Supply Points	Meter Based Charges
			Volumetric Charges
		Unmeasured Supply Points - RV Based Charges	Meter Based Charges
			Volumetric Charges
		Unmeasured Supply Points - Re-assessed Charges	Meter Based Charges
			Volumetric Charges
	Miscellaneous Charges	Field Troughs and Drinking Bowls	Farms
			Crofts
		Outside Taps	Farms
			Crofts
		Water Services to Caravans	
Primary Sewerage Charges	Foul Sewerage	Measured Supply Points	Meter Based Charges
			Volumetric Charges
		Unmeasured Supply Points - RV Based Charges	Meter Based Charges
			Volumetric Charges
		Unmeasured Supply Points - Re-assessed Charges	Meter Based Charges
			Volumetric Charges
	Property Drainage		
	Roads Drainage		
	Miscellaneous Charges		
		Sewerage Services to Caravans	
	Trade Effluent Charges		

1.2.2.   The CMA shall recompute all the components of Primary Water Charges and Primary Sewerage Charges. This calculation will take into account all relevant changes to the chargeable parameters associated with the Tariff Year Settlement, and take account of all the data submitted to the Central Systems at the time the RF Settlement Run is carried out. A detailed specification of the computation of each of the components is given below.

1.2.3.   The Tariff Year Settlement Run (RF) is the final Settlement Run (RF) for any Year. It has three key differences from the monthly Invoice Period settlement runs:

- The single calculation of the full Tariff Year Settlement;
- In respect of Measured Supply Points (both water and sewerage) the calculation of a single Actual Weighted Average Unit Rate (AWA) to compute the charges for all measured volumes for the Tariff Year; and
- The application of annual minimum charges for Trade Effluent. The detail of the calculation of Trade Effluent charges is given in CSD0206.

1.2.4.   Details of certain transitional charging arrangements which are catered for in the WCS are provided in the appendices to CSD0205. The various arrangements including LUVA discounts, small meter premium and the phasing premium are fully taken into account in the process described below.

2. Primary Water Charges

2.1. General

2.1.1. The following calculation is carried out for each Water SPID which is chargeable within the RF Settlement Period.

2.1.2. A Settlement Day runs from midnight to midnight.

2.1.3. Define the RF Settlement Period by a pair of days D_l^{RF}, D_u^{RF} such that the RF Settlement Period comprises Settlement Days d such that $D_l^{RF} <= d < D_u^{RF}$. Note that the lowest bound day D_l^{RF} is included, but the upper bound day D_u^{RF} is not. In this description the full Settlement Year 2008-09 would be described by:

$$
\begin{aligned}
D_l^{RF} &= \text{1st April 2008} \\
D_u^{RF} &= \text{1st April 2009}
\end{aligned}
$$

2.1.4. Define the SPID Chargeable Period as the period for which the SPID is (potentially) in charge from the SPID Connection Date to the day before the SPID Disconnection date. It can also be defined by a pair of days D_l^A, D_u^A where $D_l^A <= D_u^A$, and the SPID is chargeable for all days d where $d >= D_l^A$ and $d < D_u^A$. Again, the lower bound day is included, but the upper bound day is not.

2.1.5. If there is no Permanent Disconnection date within the Central Systems for the SPID then set $D_u^A = D_u^{RF}$, ie to be the day after the last day of the tariff year.

2.1.6. If $D_l^A = D_u^A$ then there are no chargeable days.

2.1.7. For the avoidance of doubt the SPID Chargeable Period includes periods of vacancies, temporary disconnections, SGES etc. Appropriate adjustments for charges for these periods are made further on in the process.

2.1.8. For each SPID, establish the SPID Settlement Chargeable Period $D_l^S <= d < D_u^S$ which is the (possibly empty) sub-period for which the SPID Chargeable Period intersects the RF Settlement Period, and is given by D_l^S, D_u^S where

$$
\begin{aligned}
D_l^S &= max(D_l^A, D_l^{RF}) \\
D_u^S &= min(D_u^A, D_u^{RF})
\end{aligned}
$$

2.1.9. if $D_l^S >= D_u^S$ then the SPID does not have a SPID Settlement Chargeable Period for that RF Settlement Period. If there is no such SPID Settlement Chargeable Period then no charges are computed for this SPID. The remaining sections in respect of Primary Water Charges are only applicable to SPIDs for which charges will be computed.

2.2. Measured Supply Points - Overview

2.2.1. First compute the AWA for each Water SPID which is a Measured Supply Point, and then compute, allocate and aggregate the Meter Based Charges and the Volumetric Charges

2.3. AWA Algorithm for Water SPID

2.3.1. For each T17 Meter Chain K, establish the T17 Meter Chain "Active Period" $D_{Kl}^A <= d < D_{Ku}^A$. If the T17 Meter Chain has not been removed from the Water SPID then set $D_{Ku}^A = D_u^{RF}$

2.3.2. For each T17 Meter Chain K, establish the T17 Meter Chain Chargeable Period $D_{Kl}^C <= d < D_{Ku}^C$ which is the (possibly empty) sub-period for which the Active Period intersects the SPID Settlement Chargeable Period, and is given by D_{Kl}^C, D_{Ku}^C where

$$
\begin{array}{rcl}
D_{Kl}^C & = & max(D_{Kl}^A, D_l^S) \\
D_{Ku}^C & = & min(D_{Ku}^A, D_u^S)
\end{array}
$$

2.3.3. If $D_{Kl}^C >= D_{Ku}^C$ then the T17 Meter Chain does not have a Chargeable Period for that RF Settlement Period.

<div style="background-color:green;">Standard Volume Band Limits</div>

2.3.4. Let the Allocated Tranche be VFA, and $V1$ and $V2$ be the knots described in the Scheme of Charges which define the bands for the Standard Volume Charges above the Allocated Tranche. Let $B1$, $B2$ and $B3$ be the corresponding prices. Thus:

Standard Volume Charges	Price
Greater than zero and up to VFA	0
Greater than VFA and up to $V1$	$B1$
Greater than $V1$ and up to $V2$	$B2$
Greater than $V2$	$B3$

<div style="background-color:green;">Yearly proportion for the Allocated Tranche VFA</div>

2.3.5.   Define Water Meter Chargeable (WMC_{Kd}) for a specific T17 Meter Chain K as

$$WMC_{Kd} = \begin{cases} 1 & \text{if } D^C_{Kl} <= d < D^C_{Ku} \\ 0 & \text{otherwise} \end{cases}$$

ie WMC_{Kd} has the value of 1 when d is within a T17 Meter Chain Chargeable Period.

2.3.6.   Then for each Settlement Day d in the SPID Settlement Chargeable Period define SPID Water Meter Chargeable ($SWMC_d$) as

$$SWMC_d = max_K(WMC_{Kd})$$

and the Vacancy Adjusted SPID Water Meter Chargeable as

$$VASWMC_d = SWMC_d * (1 - VAC_d)$$

where
$$VAC_d = \begin{cases} 1 & \text{if the SPID is vacant during the Settlement Day } d; \text{ or} \\ 0 & \text{if the SPID is occupied} \end{cases}$$

2.3.7.   Compute the Total Water Meter Chargeable Days (TWMCD) as

$$TWMCD = \sum_d VASWMC_d$$

2.3.8.   Then define the Yearly Proportion YP as

$$YP = \frac{TWMCD}{DIY}$$

where DIY is the total number of days within the Settlement Period (ie 365 days or 366 days as appropriate for an RF Settlement).

2.3.9.   Then the Proportional Volume Limits $PV1$ and $PV2$ are given by

$$PV1 = YP * V1$$
$$PV2 = YP * V2$$

Allocated Tranche

2.3.10.   For each meter K for each Settlement Day d in the T17 Meter Chain Chargeable Period establish the Water Chargeable Meter Size $WCMS_{Kd}$. Note the Wholesale Charges Scheme refers to the "Tariff Meter Size" rather than the "Chargeable Meter Size".

For each day define the Meter Free Allocation (MFA) as

$$MFA_{Kd} = \begin{cases} VFA * WMC_{Kd} & \text{if } WCMS_{Kd} > 0 \\ 0 & \text{otherwise} \end{cases}$$

2.3.11. The Proportional Free Allocation PFA is given by

$$PFA = \sum_{Kd} \frac{(1 - VAC_d) * MFA_{Kd}}{DIY}$$

Capacity Volume Charges

2.3.12. The Wholesale Charges Scheme defines meter related charges in respect of a limited number of meter sizes, and for each non-zero Chargeable Meter Size provides a mapping from the Chargeable Meter Size to an entry in the corresponding table of meter sizes.

2.3.13. The Central Systems holds a related table comprising Lower Meter Size (LMS_i), Upper Meter Size (UMS_i) and the Capacity Volume Threshold (CVT_i) for $i = 1...n_T$, where

$$LMS_1 = 1$$
$$LMS_i = UMS_{i-1} + 1 \text{ for } i = 2...n_T$$
$$UMS_{n_T} = \infty \text{ (in practice, the largest integer representable in the CS)}$$

and n_T is the number of entries in the table.

2.3.14. Thus each Water Chargeable Meter Size $WCMS_{Kd} > 0$ falls uniquely within a single band $LMS_i <= WCMS_{Kd} <= UMS_i$, and each such band (LMS_i, UMS_i) maps to a unique Capacity Volume Threshold $CVT_i = CVT_i(LMS_i, UMS_i)$

2.3.15. The Meter Capacity Volume Threshold ($MCVT_{Kd}$) is then given by the table of Capacity Volume Thresholds as

$$MCVT_{Kd} = \begin{cases} 0 & \text{if } WCMS_{Kd} = 0 \\ CVT_i(LMS_i, UMS_i) * WMC_{Kd} & \text{if } WCMS_{Kd} > 0 \\ 0 & \text{otherwise} \end{cases}$$

where (LMS_i, UMS_i) is the band corresponding to $WCMS_{Kd}$

2.3.16. The Proportional Capacity Volume Threshold ($PCVT$) applicable for the SPID for the year is given by

$$PCVT = \sum_{Kd} \frac{(1 - VAC_d) * MCVT_{Kd}}{DIY}$$

2.3.17. For each T17 Meter Chain which has a Chargeable Period in the Settlement Year, for each Settlement Day d in the T17 Meter Chain Chargeable Period, establish whether the day is within a Meter Pre-Advance Period, a Meter Advance Period (MAP) or a Meter Post-Advance Period. (see definitions in section A.3). [1]

2.3.18. For each Settlement Day d within a Meter Advance Period, the Meter Advance Volume (MAV) is given by $MAV = R_2 - R_1 + [10^n]$ where

D_1 is the first date of the Meter Advance Period;
R_1 is the corresponding read;
D_2 is the day after the last date of the Meter Advance Period.
R_2 is corresponding read; and
$[10^n]$ is the additional value which is added in the special case where rollover occurs, and in accordance with CSD0204 paragraph 2.1.2

2.3.19. Compute the Meter Advance Chargeable Days $MACD$ as

$$MACD = \sum_{d=D_1}^{D_2-1} (1 - VAC_d)(1 - TDISC_d)$$

where

$$TDISC_d = \begin{cases} 1 & \text{if the SPID is Temporarily Disconnected during the Settlement Day } d; \text{ or} \\ 0 & \text{otherwise} \end{cases}$$

2.3.20. For each day d within the Meter Advance Period compute the Unadjusted Actual Daily Volume $UADV_{Kd}$ as

$$UADV_{Kd} = \frac{MAV}{MACD}$$

and the Actual Daily Volume ADV_{Kd} as

$$ADV_{Kd} = \begin{cases} \dfrac{MAV}{MACD} & \text{if } MACD > 0 \\ \\ 0 & \text{if } MACD = 0 \end{cases}$$

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[1]Note - the terms "Meter Pre-Advance Period", "Meter Advance Period" and "Meter Post-Advance Period" are all formally defined in the Market Code, Schedule 1. However, non-definitive diagrams describing each of these periods are provided in the Appendix A.3

2.3.21. For days within a Meter Post-Advance Period compute the Unadjusted Estimated Daily Volume $UEDV_{Kd}$ as

$$UEDV_{Kd} = UADV_{Kd'} \text{ for the last day } d' \text{ for which there is a value of } UADV_{Kd'}$$

2.3.22. The Estimated Daily Volume EDV_{Kd} is calculated as

$$EDV_{Kd} = UEDV_{Kd} * (1 - VAC_d) * (1 - TDISC_d)$$

2.3.23. For days within a Meter Pre-Advance Period compute the Unadjusted Estimated Daily Volume $UEDV_{Kd}$ as

$$UEDV = \begin{cases} \dfrac{YVE}{DIY} & \text{for the meter in the T17 Meter Chain if that meter has an LP } YVE; \text{ else} \\[3mm] \dfrac{ILE}{DIY} & \text{the Industry Level Estimate for that meter} \end{cases}$$

2.3.24. To establish the ILE for a meter K for the Settlement Day d first establish the Water Chargeable Meter Size $WCMS_{Kd}$

2.3.25. The Central Systems have a table Industry Level Estimates, comprising a series of monotonically increasing Meter Size MS_i and Industry Level Estimates ILE_i, for $i = 1...n_T$ where n_T is the number of entries in the table. (***Note*** This is potentially a different n_T from the one in 2.3.12) Then the Tabular Meter Size (TMS_{Kd}) in respect of the Industry Level Estimate for the T17 Meter Chain K for the Settlement Day d is

$$TMS_{Kd} = \begin{cases} 0 & \text{if } WCMS_{Kd} = 0; \text{ else} \\ MS_{n_T} & \text{if } WCMS_{Kd} >= MS_{n_T}; \text{ else} \\ MS_j & \text{where } j \text{ has the minimum value such that } MS_j >= WCMS_{Kd} \end{cases}$$

and the Industry Level Estimate (ILE) [2] for the T17 Meter Chain K for the Settlement Day d is then given by the table of Industry Level Estimates as

$$ILE = \begin{cases} \text{undefined} & \text{if } TMS_{Kd} = 0; \text{ else} \\ ILE_i(TMS_{Kd}) \end{cases}$$

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[2]Note - the result of the undefined case for ILE when $TMS_{Kd} = 0$ is that no settlement values are returned if the Central Systems have to resort to using the ILE estimate for meter volume when the chargeable meter size is zero. Settlement results are returned provided that there are either meter readings or there is an LP supplied YVE

2.3.26. The Estimated Daily Volume EDV_{Kd} is calculated as

$$EDV_{Kd} = UEDV_{Kd} * (1 - VAC_d) * (1 - TDISC_d)$$

2.3.27. For all K, d compute the Daily Volume DV_{Kd}

$$DV_{Kd} = \begin{cases} ADV_{Kd} & \text{for periods within a Meter Advance Period} \\ EDV_{Kd} & \text{for period within a Meter Pre-Advance or Post-Advance Period} \\ 0 & \text{for any other Settlement Day } d \end{cases}$$

2.3.28. For each meter K, and Settlement Day d, the Derived Daily Volume DDV_{Kd} is calculated as

$$DDV_{Kd} = \begin{cases} DV_{Kd} - \sum_L DV_{Ld} & \text{or} \\ 0 & \text{for any } d \text{ not in the T17 Meter Chain Chargeable Period} \end{cases}$$

where the sum is over all meters L which are sub-meters of meter K. The derivation of the appropriate terms DV_{Ld} for the sub-meters is the same as for the meter K.

Note The above equation describes the subtraction of sub-meter volumes from a main meter volume to establish the Derived Daily Volume. It has not yet been possible to verify that interaction of (i) the subtraction of the meter volumes, and (ii) the shifting of volumes described above in respect of vacancy works precisely in the order specified by the equation. The intention is to document the Central Systems behaviour rather than to propose any changes to the Central Systems behaviour.

2.3.29. The Actual Yearly Volume(AYV) for the Water SPID is then

$$AYV = \sum_{Kd} DDV_{Kd}$$

Volumes for the LUVA charges

2.3.30. For each Settlement Day d in the SPID Settlement Chargeable Period define LUVA Chargeable (LC_d) as

$$LC_d = \begin{cases} 1 & \text{if the SPID has the LUVA flag set, and } SWMC_d > 0 \\ 0 & \text{if the SPID does not have the LUVA flag set, or } SWMC_d = 0 \end{cases}$$

2.3.31. Compute the Total LUVA Days (TLD) as

$$TLD = \sum_{D_l^S <= d < D_u^S} LC_d * (1 - VAC_d)$$

2.3.32.   The LUVA Proportion $LUVAP$ is defined as

$$LUVAP = \frac{TLD}{DIY}$$

2.3.33.   The Proportional LUVA Volume limits $PLVLL$, $PLV1$ and $PLV2$ are given by

$$PLVLL = LUVAP * VLL$$
$$PLV1 = LUVAP * V1$$
$$PLV2 = LUVAP * V2$$

where VLL is the lower limit for the LUVA Adjustment as defined in the Wholesale Charges Scheme.

2.3.34.   Define the LUVA Annual Volume (LAV) (which is similar to the AYV sum above as defined in paragraph 2.3.29) except that the condition that the SPID has the LUVA flag set for each Settlement Day must be applied.

$$LAV = \sum_{Kd} DDV_{Kd} * LC_d$$

Phasing Premium

2.3.35.   For each Settlement Day d in the SPID Settlement Chargeable Period, for each T17 Meter Chain K define Premium Chargeable (PC_{Kd}) as

$$PC_{Kd} = \begin{cases} 0 & \text{if } WMCS_{Kd} = 0 \\ 1 & \text{if the SPID is not in a LUVA period, and} \\ & 1 <= LMS_i <= 20 \text{ and } WMC_{Kd} > 0 \\ 0 & \text{otherwise} \end{cases}$$

where LMS_i is the lower limit of the band (LMS_i, UMS_i) corresponding to $WCMS_{Kd}$ identified in paragraphs 2.3.12 ff.

2.3.36.   Define the Uncapped Premium Annual Volume $UPAV$ as

$$UPAV = \sum_{Kd} DDV_{Kd} * PC_{Kd}$$

2.3.37. Define the Total Premium Days TPD as

$$TPD = \sum_{Kd} (1 - VAC_d) * PC_{Kd}$$

2.3.38. Define the Proportional Premium Volume Limit $PPVL$ as

$$PPVL = \sum_{Kd} \frac{(1 - VAC_d) * MCVT_{Kd} * PC_{Kd}}{DIY}$$

Charges - the Standard Volume Charges

2.3.39. The Wholesale Charges Scheme defines charges for a volume V which is allocated across different charge bands (based upon a whole year's usage) in accordance with paragraph 2.3.4

2.3.40. The Proportional Free Allocation is PFA and the Proportional Volume Limits are $PV1$ and $PV2$ have already been defined. The Actual Yearly Volume is AYV. Then allocate the AYV into the different charge bands for the Allocated Tranche VFA, and Charge Bands 1, 2 and 3 ($VA1$, $VA2$ and $VA3$) as

$$VAF = \max(\min(AYV, PFA), 0)$$
$$VA1 = \max(\min(AYV, PV1) - PFA, 0)$$
$$VA2 = \max(\min(AYV, PV2) - PV1, 0)$$
$$VA3 = \max(AYV - PV2, 0)$$

2.3.41. The Standard Volume Charge ($SVCHARGE$) is defined as

$$SVCHARGE = B_1 * VA1 + B_2 * VA2 + B_3 * VA3$$

Charges - Capacity Volume Charges

2.3.42. If the Capacity Volume Price as defined in the Scheme of Charges is CVP, then the Capacity Volume Charge $CVCHARGE$ is

$$CVCHARGE = CVP * \max(\min(AYV, PCVT) - PFA, 0)$$

Charges - LUVA Adjustment

2.3.43. Allocate the LUVA Annual Volume (LAV) into volumes $LVA1$, $LVA2$ and $LVA3$ over the various charge bands to establish the LUVA adjustment.

$$LVA1 = \max(\min(LAV, PLV1) - PLVLL, 0)$$
$$LVA2 = \max(\min(LAV, PLV2) - PLV1, 0)$$
$$LVA3 = \max(LAV - PLV2, 0)$$

2.3.44. If the LUVA phasing percentages are $LPP1$, $LPP2$ and $LPP3$ then the LUVA Adjustment ($LACHARGE$) is

$$LACHARGE = LPP1 * B_1 * LVA1 + LPP2 * B_2 * LVA2 + LPP3 * B_3 * LVA3$$

2.3.45. The Proportional Phasing Premium Free Allocation ($PPPFA$) is

$$PPPFA = \frac{TPD * VFA}{DIY}$$

and the Premium Volume (PVA) on which the charge is payable is therefore

$$PVA = \max(\min(UPAV, PPVL, AYV) - PPPFA, 0)$$

2.3.46. If the Premium Percentage for the Year is PP_Y then the Phasing Premium Charge $PPCHARGE$ is given by

$$PPCHARGE = PP_Y * (B1 + CVP) * PVA$$

2.3.47. The Annual Weighted Average (AWA) for the SPID is then given by:

$$AWA = \begin{cases} 0 & \text{if } AYV <= 0 \\ \dfrac{SVCHARGE + CVCHARGE + LACHARGE + PPCHARGE}{AYV} & \text{if } AYV > 0 \end{cases}$$

2.4. Measured Supply Points - Charges

2.4.1. Define the Discounts for the SPID for each day d in the SPID Chargeable Period ie Water Schedule 3 ($WS3_d$), Schedule 29e ($S29e_d$) and whether the SPID is eligible for Scottish Government Exemption Scheme ($SGES_d$).

2.4.2. Carry out the following calculations for each SPID which has a SPID Settlement Chargeable Period for the RF Settlement Period.

2.4.3. Carry out the following calculations for each T17 Meter Chain which has a Chargeable Period for that RF Settlement Period:

2.4.4. In accordance with 2.3.12 the Wholesale Charges Scheme defines meter related charges in respect of a limited number of meter sizes, and for each non-zero Chargeable Meter Size provides a mapping from the Chargeable Meter Size to an entry in the corresponding table of meter sizes.

2.4.5. The Central Systems holds a related table comprising Lower Meter Size (LMS_i), Upper Meter Size (UMS_i) and the Water Meter Annual Non-Volumetric Charges ($WMANVC_i$) for $i = 1...n_T$, where

$$LMS_1 = 1$$
$$LMS_i = UMS_{i-1} + 1 \text{ for } i = 2...n_T$$
$$UMS_{n_T} = \infty \text{ (in practice, the largest integer representable in the CS)}$$

and n_T is the number of entries in the table.

2.4.6. Thus each Water Chargeable Meter Size $WCMS_{Kd} > 0$ falls uniquely within a single band $LMS_i <= WCMS_{Kd} <= UMS_i$, and each such band (LMS_i, UMS_i) maps to a unique Water Meter Annual Non-Volumetric Charges $WMANVC_i = WMANVC_i(LMS_i, UMS_i)$

2.4.7. The Unadjusted Water Meter Based Charge ($UWMBC_{Kd}$) is then given by the table of Water Meter Annual Non-Volumetric Charges as

$$UWMBC_{Kd} = \begin{cases} 0 & \text{if } WCMS_{Kd} = 0 \\[2ex] \dfrac{WMANVC_i(LMS_i, UMS_i) * WMC_{Kd} * (1 - VAC_d)}{DIY} & \text{if } WCMS_{Kd} > 0 \\[2ex] 0 & \text{otherwise} \end{cases}$$

where (LMS_i, UMS_i) is the band corresponding to $WCMS_{Kd}$

2.4.8. The Unadjusted Discounted Water Meter Based Charge ($UDWMBC_{Kd}$) is then given

$$UDWMBC_{Kd} = UWMBC_{Kd} * (1 - WS3_d - S29e_d)$$

2.4.9. The Transition Adjusted Water Meter Based Charge $TAWMBC_{Kd}$ is

$$TAWMBC_{Kd} = \begin{cases} UDWMBC_{Kd} & \text{if not on Transition} \\ MT_Y * UDWMBC_{Kd} & \text{if on Transistion} \end{cases}$$

where MT_Y is the Metering Transition Percentage applicable for the Financial Year Y. For the Financial Year $Y = 2008\text{-}09$, $MT_Y = 0\%$, and for $Y = 2009\text{-}10$, $MT_Y = 33\%$. The percentage for other years as defined in the relevant Wholesale Charges Scheme.

2.4.10. The Water Meter Based Charge $WMBC_{Kd}$ is

$$WMBC_{Kd} = \begin{cases} TAWMBC_{Kd} & \text{if not } SGES_d \text{ or } SER_d = 0 \\ -SGESWR_Y/(DIY * SER_d) & \text{if } SGES_d \text{ and } SER_d > 0 \end{cases}$$

where $SGESWR_Y$ is the SGES Water refund applicable for the Financial Year Y, and where SER_d is the number of Service Element Reports for the SPID.

2.4.11. For each Settlement Day d for a Water SPID there are:

- two Service Element Reports for each T17 Meter Chain which is chargeable on that day;
- two Service Element Reports for each Unmeasurable Service Element which is chargeable on that day; and
- a Service Element Report for each Miscellaneous Charge which is chargeable on that day. The Miscellaneous charges are:
  - Field Troughs and Drinking Bowls;
  - Outside Taps; and
  - Water Services to Caravans.

2.4.12. The CMA will allocate the Meter Based Charge to Licensed Provider for which the SPID was registered in respect of each Settlement Day. It will then aggregate Volumes and Charges, and report them in accordance with CSD0201.

<div style="background-color:#00ff00; border-radius:20px; padding:4px 12px; display:inline-block;">Volumetric Charges</div>

2.4.13. The Unadjusted Daily Metered Cost ($UDMC_{Kd}$) is

$$UDMC_{Kd} = AWA * DDV_{Kd} * (1 - WS3_d - S29e_d)$$

2.4.14. Apply the Transition Adjustment to obtain the Transition Adjusted Daily Metered Cost $TADMC_d$

$$TADMC_{Kd} = \begin{cases} UDMC_{Kd} & \text{if not on Transition} \\ MT_Y * UDMC_{Kd} & \text{if on Transition} \end{cases}$$

2.4.15.   The Daily Metered Cost DMC_{Kd} is

$$DMC_{Kd} = \begin{cases} TADMC_{Kd} & \text{if not } SGES_d \text{ or } SER_d = 0 \\ -SGESWR_Y/(DIY * SER_d) & \text{if } SGES_d \text{ and } SER_d > 0 \end{cases}$$

2.4.16.   The CMA will allocate the Meter Based Charge to the Licensed Provider for which the SPID was registered in respect of each Settlement Day. It will then aggregate Volumes and Charges, and report them in accordance with CSD0201.

2.5. Unmeasured Supply Points - Overview

2.5.1.   Consider the charges for Unmeasured Supply Points including both RV based charges and Re-assessed Charges.

2.5.2.   The following Water SPIDs are subject to Unmeasured Charging:

- RV Based Charging
  - Water SPIDs with meters which are subject to transition charging
  - Water SPIDs which have never had meters which are subject to transition charging
  - Water SPIDs which have been declared unmeasurable
- Re-assessed Charging
  - Water SPIDs which have been agreed are subject to Re-assessed Charging

Further information on transition charging is provided in the Appendices to CSD0205.

2.6. RV Based Charges

RV Non-Volumetric Charges

2.6.1.   Define the discounts for the SPID for each day d in the SPID Chargeable Period ie Water Schedule 3 ($WS3_d$), Schedule 29e ($29e$) and whether the SPID is eligible for the Scottish Government Exemption Scheme ($SGES_d$).

2.6.2.   The SPID Settlement Chargeable Period has already been defined as the period time given by the days D_l^S, D_u^S.

2.6.3. The relevant SPID RV Unmeasurable Period is defined as the period of time for which either:

- The Water SPID has an active meter which is subject to transition charging;
- The Water SPID does not have a meter, but is subject to transition charging; or
- The Water SPID has been declared unmeasurable

and is likewise given by a pair of days D_l^{RV}, D_u^{RV}.

2.6.4. Then the SPID RV Unmeasurable Chargeable Period $D_l^C <= d < D_u^C$ which is the (possibly empty) sub-period for which the RV Unmeasurable Period intersects the SPID Settlement Chargeable Period, and is given by D_l^C, D_u^C where

$$
\begin{array}{rcl}
D_l^C & = & max(D_l^{RV}, D_l^S) \\
D_u^C & = & min(D_u^{RV}, D_u^S)
\end{array}
$$

2.6.5. If $D_l^C >= D_u^C$ then the SPID does not have an RV Unmeasurable Period for that RF Settlement Period.

2.6.6. For each each Settlement Day d in the SPID RV Unmeasurable Chargeable Period define the Rateable Value RV_d

2.6.7. In accordance with the Wholesale Scheme of Charges define the Water Chargeable Meter Size ($WCMS_d$) which corresponds to RV_d, and each $WCMS_i$ corresponds to a unique Water Meter Annual Non-Volumetric Charge ($WMANVC_i = WMANVC_i(WCMS_d)$).

2.6.8. The Unadjusted Water Meter Based Charge ($UWMBC_d$) is given by the table of Water Meter Annual Non-Volumetric Charges as

$$
UWMBC_d = \frac{WMANVC_i(WCMS_i) * (1 - VAC_d)}{DIY}
$$

2.6.9. The Unadjusted Discounted Water Meter Based Charge ($UDWMBC_d$) is then given by

$$
UDWMBC_d = UWMBC_d * (1 - WS3_d - S29e_d)
$$

2.6.10. For each Settlement Day d the Transition Adjusted Water Meter Based Charge $TAWMBC_d$ is

$$TAWMBC_d = \begin{cases} UDWMBC_d & \text{if the SPID has been declared Unmeasurable} \\ UDWMBC_d & \text{if the SPID is on Transition and} \\ & \text{does not have an Active meter} \\ (1 - MT_Y) * UDWMBC_{Kd} & \text{if the SPID is on Transition and has an Active meter} \end{cases}$$

where MT_Y is the Metering Transition Percentage applicable for the Financial Year Y. For the Financial Year $Y = 2008\text{-}09$, $MT_Y = 0\%$, and for $Y = 2009\text{-}10$, $MT_Y = 33\%$. The percentage for other years are as defined in the relevant Wholesale Charges Scheme.

2.6.11. The Water Meter Based Charge $WMBC_d$ is

$$WMBC_{Kd} = \begin{cases} TAWMBC_{Kd} & \text{if not } SGES_d \text{ or } SER_d = 0 \\ -SGESWR_Y/(DIY * SER_d) & \text{if } SGES_d \text{ and } SER_d > 0 \end{cases}$$

where as above $SGESWR_Y$ is the SGES Water refund applicable for the Financial Year Y, and SER_d is the number of Service Element Reports for the SPID.

2.6.12. The CMA will allocate the Meter Based Charge to Licensed Provider for which the SPID was registered in respect of each Settlement Day. It will then aggregate Volumes and Charges, and report them in accordance with CSD0201.

RV Volumetric Charges

2.6.13. For each each Settlement Day d in the SPID RV Unmeasurable Chargeable Period define the Rateable Value RV_d

2.6.14. The equivalent Actual Yearly Volume AYV_d given by

$$AYV_d = \begin{cases} (0.0373 * RV_d - 24) * (1 - VAC_d) & \text{if } RV_d >= 650 \\ 0 & \text{otherwise} \end{cases}$$

and the equivalent Derived Daily Volume DDV_d is given by

$$DDV_d = \frac{AYV_d}{DIY}$$

2.6.15. The same calculation used to derive AWA in section 2.3 can be used to derive an AWA_d for each day of the RV Unmeasurable Chargeable Period, based upon an equivalent whole year calculation and using the equivalent Actual Yearly Volume AYV_d and the meter size $WCMS_d$.

2.6.16. The Unadjusted Daily Metered Cost ($UDMC_d$)is given by

$$UDMC_d = AWA_d * DDV_d * (1 - WS3_d - S29e_d)$$

2.6.17. Apply the Transition Adjustment to obtain the Transition Adjusted Daily Metered Cost $TADMC_d$

$$TADMC_d = \begin{cases} UDMC_d & \text{if the SPID has been declared Unmeasurable} \\ UDMC_d & \text{if the SPID is on Transition and does not have} \\ & \quad \text{an Active meter} \\ (1 - MT_Y) * UDMC_d & \text{if the SPID is on Transition and has an Active meter} \end{cases}$$

2.6.18. The Daily Metered Cost DMC_d is

$$DMC_d = \begin{cases} TADMC_d & \text{if not } SGES_d \text{ or } SER_d = 0 \\ -SGESWR_Y/(DIY * SER_d) & \text{if } SGES_d \text{ and } SER_d > 0 \end{cases}$$

2.6.19. The CMA will allocate the Meter Based Charge to the Licensed Provider for which the SPID was registered in respect of each Settlement Day. It will then aggregate Volumes and Charges, and report them in accordance with CSD0201.

2.7. Re-assessed Charges

Re-assessed Non-Volumetric Charges

2.7.1. Re-assessed Charges were introduced on 1st April 2009. However, it should be noted that the method within the Central Systems for calculating Re-assessed Charges does not carry out any verification that the data applies for a period of time on or after the date of introduction of Re-assessed Charges.

2.7.2. Details of the calculation in the Central Systems will be added at a later stage to this CSD after the details of the calculation have been verified.

2.8. Miscellaneous Charges

2.8.1. This section applies to the following Miscellaneous Charges:

- Field Troughs and Drinking Bowls;
- Outside Taps; and
- Water Services to Caravans.

2.8.2. It should be noted that charges for Water Services to Caravans have been removed from the 2010-2011 Wholesale Charges Scheme. The method for dealing with such charges remains within the Central Systems, but the relevant charges have been set to zero.

2.8.3. Define the Discounts for the SPID for each day d in the SPID Chargeable Period ie Water Schedule 3 ($WS3_d$), Schedule 29e ($S29e_d$) and whether the SPID is eligible for Scottish Government Exemption Scheme ($SGES_d$).

2.8.4. The SPID Settlement Chargeable Period has already been defined as the period time given by the days D_l^S, D_u^S. As above define the relevant Chargeable Period for each of the Miscellaneous Charges.

2.8.5. For each miscellaneous charge define and for each Settlement Day d in the relevant Chargeable period define

- the number of Troughs and Drinking Bowls (TDB_d);
- the number of Outside Taps (OT_d); and
- the number of Caravans with Water Services to Caravans WSC_d.

2.8.6. Also for each Settlement Day d define

$$FARM_d = \begin{cases} 1 & \text{if the SPID is classified as being a farm} \\ 0 & \text{otherwise} \end{cases}$$

and

$$CROFT_d = \begin{cases} 1 & \text{if the SPID is classified as being a croft} \\ 0 & \text{otherwise} \end{cases}$$

2.8.7. Let the following prices be defined as per the Wholesale Charges Scheme:

Annual Price Farm Troughs and Drinking Bowls	$FTDBP$
Annual Price Croft Troughs and Drinking Bowls	$CTDBP$
Annual Price Farm Outside Tap	$FOTP$
Annual Price Croft Outside Tap	$COTP$
Annual Price Water Services to Caravans	$WSCP$

2.8.8. Calculate the Unadjusted Troughs and Drinking Bowls Charge $UTDBC_d$, the Unadjusted Outside Taps Charge $UOTC_d$ and the Unadjusted Water Services to Caravans Charge $UWSCC_d$ as

$$UTDBC_d = (FTDBP * FARM_d + CTDBP * CROFT_d) * TDB_d * (1 - VAC_d)/DIY$$
$$UOTC_d = (FOTP * FARM_d + COTP * CROFT_d) * OT_d * (1 - VAC_d)/DIY$$
$$UWSCC_d = WSCP * WSC_d * (1 - VAC_d)/DIY$$

2.8.9. The Unadjusted Discounted Troughs and Drinking Bowls Charge $UDTDBC_d$, the Unadjusted Discounted Outside Taps Charge $UDOTC_d$ and the Unadjusted Discounted Water Services to Caravans Charge $UDWSCC_d$ are given by

$$UDTDBC_d = UTDBC_d * (1 - WS3_d - S29e_d)$$
$$UDOTC_d = UOTC_d * (1 - WS3_d - S29e_d)$$
$$UDWSCC_d = UWSCC_d * (1 - WS3_d - S29e_d)$$

2.8.10. The Troughs and Drinking Bowls Charge $TDBC_d$, the Outside Taps Charge OTC_d and the Water Services to Caravans Charge $WSCC_d$ are given by

$$OTC_d = \begin{cases} UDOTC_d & \text{if not } SGES_d \text{ or } SER_d = 0 \\ -SGESWR_Y/(DIY * SER_d) & \text{if } SGES_d \text{ and } SER_d > 0 \end{cases}$$

$$TDBC_d = \begin{cases} UDTDBC_d & \text{if not } SGES_d \text{ or } SER_d = 0 \\ -SGESWR_Y/(DIY * SER_d) & \text{if } SGES_d \text{ and } SER_d > 0 \end{cases}$$

$$WSCC_d = \begin{cases} UDWSCC_d & \text{if not } SGES_d \text{ or } SER_d = 0 \\ -SGESWR_Y/(DIY * SER_d) & \text{if } SGES_d \text{ and } SER_d > 0 \end{cases}$$

where as above $SGESWR_Y$ is the SGES Water refund applicable for the Financial Year Y, and SER_d is the number of Service Element Reports for the SPID.

2.8.11. The CMA will allocate the Miscellaneous Charges to the Licensed Provider for which the SPID was registered in respect of each Settlement Day. It will then aggregate the volumes and charges, and report them in accordance with CSD0201.

3. Primary Sewerage Charges

3.1. General

3.1.1.   Carry out the following calculation for each Sewerage SPID which is chargeable within the RF Settlement Period.

3.1.2.   The RF Settlement Period is defined by a pair of days D_l^{RF}, D_u^{RF} such that the RF Settlement Period comprises Settlement Days d such that $D_l^{RF} <= d < D_u^{RF}$. Note that the lowest bound day D_l^{RF} is included, but the upper bound day D_u^{RF} is not. In this description the full Settlement Year 2008-09 would be described by:

$$
\begin{aligned}
D_l^{RF} &= \text{1st April 2008} \\
D_u^{RF} &= \text{1st April 2009}
\end{aligned}
$$

3.1.3.   The SPID Chargeable Period is defined as the period for which the Sewerage SPID is (potentially) in charge from the Sewerage SPID Connection Date to the day before the Sewerage SPID Disconnection date (if it exists). It can also be defined by a pair of days D_l^A, D_u^A where $D_l^A <= D_u^A$, and the SPID is chargeable for all days d where $d >= D_l^A$ and $d < D_u^A$. Again, the lower bound day is included, but the upper bound day is not.

3.1.4.   If there is no Disconnection date within the Central Systems for the Sewerage SPID then set $D_u^A = D_u^{RF}$, ie to be the day after the last day of the tariff year.

3.1.5.   If $D_l^A = D_u^A$ then there are no chargeable days.

3.1.6.   For the avoidance of doubt the SPID Chargeable Period includes periods of vacancies, temporary disconnections, SGES etc. Appropriate adjustments for charges for these periods are made further on in the algorithm

3.1.7.   For each Sewerage SPID, establish the SPID Settlement Chargeable Period $D_l^S <= d < D_u^S$ which is the (possibly empty) sub-period for which the SPID Chargeable Period intersects the RF Settlement Period, and is given by D_l^S, D_u^S where

$$
\begin{aligned}
D_l^S &= max(D_l^A, D_l^{RF}) \\
D_u^S &= min(D_u^A, D_u^{RF})
\end{aligned}
$$

3.1.8.   if $D_l^S >= D_u^S$ then the Sewerage SPID does not have a SPID Settlement Chargeable Period for that RF Settlement Period. If there is no such SPID Settlement Chargeable Period then set $AWA = 0$ and skip the rest of the AWA Calculation for this Sewerage SPID.

3.2. Measured Supply Points - Overview

3.2.1. Compute the AWA for each Sewerage SPID which is a Measured Supply Point, and then compute, allocate and aggregate the Meter Based Charges and the Volumetric Charges

3.3. AWA Algorithm for Sewerage SPID

3.3.1. Establish if there is a Related Water Supply Point (RWSP). If there is no such Related Water Supply Point, then set $AWA = 0$ and skip the rest of the AWA Calculation for this Sewerage SPID.

3.3.2. For each T17 Meter Chain K associated with the RWSP (a "Related T17 Meter Chain") establish the T17 Meter Chain Active Period $D_{Kl}^A <= d < D_{Ku}^A$. If the Related T17 Meter Chain has not been removed from the RWSP then set $D_{Ku}^A = D_u^{RF}$

3.3.3. For each Related T17 Meter Chain K, define the T17 Meter Chain Chargeable Period $D_{Kl}^C <= d < D_{Ku}^C$ which is the (possibly empty) sub-period for which the Active Period intersects the SPID Settlement Chargeable Period for the Sewerage SPID, and is given by D_{Kl}^C, D_{Ku}^C where

$$
\begin{array}{rcl}
D_{Kl}^C & = & max(D_{Kl}^A, D_l^S) \\
D_{Ku}^C & = & min(D_{Ku}^A, D_u^S)
\end{array}
$$

3.3.4. If $D_{Kl}^C >= D_{Ku}^C$ then the Related T17 Meter Chain does not have a Chargeable Period for that RF Settlement Period.

3.3.5. Establish the if there are any Trade Effluent consents (DPIDs) associated with the Sewerage SPID. For each such DPID T [3] associated with the Sewerage SPID establish the DPID Active Period $D_{Tl}^A <= d < D_{Tu}^A$

3.3.6. For each DPID T the DPID Chargeable Period $D_{Tl}^C <= d < D_{Tu}^C$ is the (possibly empty) sub-period for which the DPID Active Period intersects the SPID Settlement Chargeable Period for the Sewerage SPID, and is given by D_{Tl}^C, D_{Tu}^C where

$$
\begin{array}{rcl}
D_{Tl}^C & = & max(D_{Tl}^A, D_l^S) \\
D_{Tu}^C & = & min(D_{Tu}^A, D_u^S)
\end{array}
$$

3.3.7. If $D_{Tl}^C >= D_{Tu}^C$ then the DPID does not have a Chargeable Period for that RF Settlement Period.

---

[3]The subscript T indicates its a DPID

3.3.8. For each Settlement Day d for each DPID T with a Chargeable Period $D_{Tl}^C <= d < D_{Tu}^C$, establish the Non Domestic Allowance NDA_{Td}. For all other days d for each DPID T set $NDA_{Td} = 0$.

Sewerage Standard Volume Band Limits

3.3.9. Let the SFA be the Sewerage Allocated Tranche, and $BS1$ be the price for Sewerage Standard Volumes above the Allocated Tranche as defined in the Wholesale Charges Scheme. Thus:

Sewerage Standard Volume Charges	Price
Greater than zero and up to SFA	0
Greater than SFA	$BS1$

3.3.10. Define the Sewerage Meter Chargeable (SMC_{Kd}) for a Related T17 Meter Chain K as

$$SMC_{Kd} = \begin{cases} 1 & \text{if } D_{Kl}^C <= d < D_{Ku}^C \text{ and } RTS_{Kd} > 0 \\ 0 & \text{otherwise} \end{cases}$$

where RTS_{Kd} is the Return to Sewer allowance for the Related T17 Meter Chain K for the Settlement Day d.

3.3.11. For each Settlement Day d in the SPID Settlement Chargeable Period define Total Sewerage Meter Chargeable ($TSMC_{Kd}$) as

$$TSMC_d = \sum_K SMC_{Kd}$$

Sewerage Free Allocation

3.3.12. For each meter K for each Settlement Day d in the T17 Meter Chain Chargeable Period establish the Sewerage Chargeable Meter Size $SCMS_{Kd}$

3.3.13. For each day define the Meter Sewerage Free Allocation ($MSFA_{Kd}$) as

$$MSFA_{Kd} = \begin{cases} SFA * SMC_{Kd} & \text{if } SCMS_{Kd} > 0 \\ 0 & \text{otherwise} \end{cases}$$

3.3.14.   The Sewerage Proportional Free Allocation $SPFA$ is given by

$$SPFA = \sum_{Kd} \frac{(1 - VAC_d) * MSFA_{Kd}}{DIY}$$

Volume limits for the Sewerage Capacity Volume Charges

3.3.15.   The Wholesale Charges Scheme defines meter related charges in respect of a limited number of meter sizes, and for each non-zero Chargeable Meter Size provides a mapping from the Chargeable Meter Size to an entry in the corresponding table of meter sizes. The table entries in respect of Sewerage do not necessarily correspond to the table entries in respect of water.

3.3.16.   The Central Systems holds a related table comprising Lower Meter Size (LMS_i), Upper Meter Size (UMS_i) and the Sewerage Capacity Volume Threshold ($SCVT_i$) for $i = 1...n_T$, where

$$LMS_1 = 1$$
$$LMS_i = UMS_{i-1} + 1 \text{ for } 2 = 1...n_T$$
$$UMS_{n_T} = \infty \text{ (in practice the largest integer representable in the CS)}$$

3.3.17.   Thus each Sewerage Chargeable Meter Size $SCMS_{Kd} > 0$ falls uniquely within a single band $LMS_i <= WCMS_{Kd} <= UMS_i$, and each such band (LMS_i, UMS_i) maps to a unique Sewerage Capacity Volume Threshold $SCVT_i = SCVT_i(LMS_i, UMS_i)$

3.3.18.   The Meter Sewerage Capacity Volume Threshold ($MSCVT_{Kd}$) is then given by the table of Sewerage Capacity Volume Thresholds as

$$MSCVT_{Kd} = \begin{cases} 0 & \text{if } SCMS_{Kd} = 0 \\ SCVT_i(LMS_i, UMS_i) * SMC_{Kd} & \text{if } SCMS_{Kd} > 0 \\ 0 & \text{otherwise} \end{cases}$$

where (LMS_i, UMS_i) is the band corresponding to $SCMS_{Kd}$

3.3.19.   The Sewerage Proportional Capacity Volume Threshold ($SPCVT$) applicable for the Sewerage SPID for the year is given by

$$SPCVT = \sum_{Kd} \frac{(1 - VAC_d) * MSCVT_{Kd}}{DIY}$$

3.3.20.   Then derive DDV_{Kd} as per the AWA Algorithm for Water in the paragraphs following 2.3.17

3.3.21. The Sewerage Derived Daily Volume $SDDV_{Kd}$ for each Related T17 Meter Chain K for each day d in a Related T17 Meter Chain Chargeable Period is

$$SDDV_{Kd} = \begin{cases} \sum_T \dfrac{(1 - VAC_d) * (1 - TDISC_d) * SMC_{Kd} * NDA_{Td}}{DIY * TSMC_d} & \text{for all days } d \text{ for which} \\[2em] & \sum_T NDA_{Td} > 0, \text{ and } TSMC_d > 0 \\[1em] DDV_{Kd} * RTS_{Kd} & \text{otherwise} \end{cases}$$

3.3.22. The Actual Sewerage Yearly Volume ($ASYV$) for the Sewerage SPID is then

$$ASYV = \sum_{Kd} SDDV_{Kd}$$

Charges - Standard Sewerage Volume Charges

3.3.23. The Wholesale Charges Scheme defines charges for a volume V which is allocated across different charge bands (based upon a whole year's usage) in accordance with paragraph 3.3.9

3.3.24. The Sewerage Proportional Free Allocation is $SPFA$ and the Actual Sewerage Yearly Volume is $ASYV$ have previously been defined. Then calculate the Sewerage Standard Volume Charge ($SSVCHARGE$) as

$$SSVCHARGE = BS1 * \max(ASYV - SPFA, 0)$$

Charges - Sewerage Capacity Volume Charges

3.3.25. If the Sewerage Capacity Volume Price as defined in the Scheme of Charges is $SCVP$, then the Sewerage Capacity Volume Charge $SCVCHARGE$ is

$$SCVCHARGE = SCVP * \max(\min(ASYV, SPCVT) - SPFA, 0)$$

AWA

3.3.26. The Annual Weighted Average (AWA) for the Sewerage SPID is then given by:

$$AWA = \begin{cases} 0 & \text{if } ASYV <= 0 \\[1.5em] \dfrac{SSVCHARGE + SCVCHARGE}{ASYV} & \text{if } ASYV > 0 \end{cases}$$

3.4. Measured Sewerage Supply - Charges

3.4.1. The discounts for the SPID for each day d in the SPID Chargeable Period are Sewerage Schedule 3 ($SS3_d$), Schedule 29e ($S29e_d$) and whether the SPID is eligible for Scottish Government Exemption Scheme ($SGES_d$).

3.4.2. Carry out the following calculations for each SPID which has a SPID Settlement Chargeable Period for the RF Settlement Period.

3.4.3. Carry out the following calculations for each Related T17 Meter Chain which has a Chargeable Period for that RF Settlement Period:

Meter Based Charges

3.4.4. As per 3.3.15 the Wholesale Charges Scheme defines meter related charges in respect of a limited number of meter sizes, and for each non-zero Chargeable Meter Size provides a mapping from the Chargeable Meter Size to an entry in the corresponding table of meter sizes.

3.4.5. The Central Systems holds a table comprising Lower Meter Size (LMS_i), Upper Meter Size (UMS_i) and the Sewerage Meter Annual Non-Volumetric Charges ($SMANVC_i$) for $i = 1...n_T$, where

$$LMS_1 = 1$$
$$LMS_i = UMS_{i-1} + 1 \text{ for } i = 2...n_T$$
$$UMS_{n_T} = \infty \text{ (in practice, the largest integer representable in the CS)}$$

and n_T is the number of entries in the table.

3.4.6. Thus each Sewerage Chargeable Meter Size $SCMS_{Kd} > 0$ falls uniquely within a single band $LMS_i <= SCMS_{Kd} <= UMS_i$, and each such band ($LMS_i, UMS_i$) maps to a unique Sewerage Meter Annual Non-Volumetric Charged $SMANVC_i = SMANVC_i(LMS_i, UMS_i)$

3.4.7. Then Unadjusted Sewerage Meter Based Charge ($USMBC_{Kd}$) is then given by the table of Sewerage Meter Annual Non-Volumetric Charges as

$$USMBC_{Kd} = \begin{cases} 0 & \text{if } SCMS_{Kd} = 0 \\ \dfrac{SMANVC_i(LMS_i, UMS_i) * SMC_{Kd} * (1 - VAC_d)}{DIY} & \text{if } SCMS_{Kd} > 0 \\ 0 & \text{otherwise} \end{cases}$$

where (LMS_i, UMS_i) is the band corresponding to $SCMS_{Kd}$

3.4.8. Then the Unadjusted Discounted Sewerage Meter Based Charge ($UDSMBC_{Kd}$) is then given

$$UDSMBC_{Kd} = USMBC_{Kd} * (1 - SS3_d - S29e_d)$$

3.4.9. The Transition Adjusted Sewerage Meter Based Charge $TASMBC$ is

$$TASMBC_{Kd} = \begin{cases} UDSMBC_{Kd} & \text{if not on Transition} \\ MT_Y * UDSMBC_{Kd} & \text{if on Transition} \end{cases}$$

where MT_Y is the Metering Transition Percentage applicable for the Financial Year Y.

3.4.10. The Sewerage Meter Based Charge $SMBC_{Kd}$ is

$$SMBC_{Kd} = \begin{cases} TASMBC_{Kd} & \text{if not } SGES_d \text{ or } SER_d = 0 \\ -SGESSR_Y/(DIY * SER_d) & \text{if } SGES_d \text{ and } SER_d > 0 \end{cases}$$

where $SGESSR_Y$ is the SGES Sewer refund applicable for the Financial Year Y, and where SER_d is the number of Service Element Reports for the SPID.

3.4.11. For each Settlement Day d there are:

- two Service Element Reports for each Related T17 Meter Chain [4] which is chargeable on that day
- two Service Element Reports for each Unmeasurable Service Element which is chargeable on that day
- a single Service Element for each DPID which is chargeable on that day
- a Service Element Report for Roads Drainage if it is chargeable on that day
- a Service Element Report for Property Drainage if it is chargeable on that day
- a Service Element Report for Sewerage Services to Caravans if it is chargeable on that day

3.4.12. The CMA will allocate the Meter Based Charge to the Licensed Provider for which the SPID was registered in respect of each Settlement Day. It will then aggregate Volumes and Charges, and report them in accordance with CSD0201.

Sewerage Volumetric Charges

3.4.13. The Unadjusted Daily Metered Cost ($UDMC_{Kd}$) is

$$UDMC_{Kd} = AWA * SDDV_{Kd} * (1 - SS3_d - S29e_d)$$

---

[4]When the RTS is zero there may be less than two Service Elements per Related T17 Meter Chain. In particular, there will be no service element for Meter Based Charges

3.4.14. Apply Transition Adjustment if appropriate to obtain Transition Adjusted Daily Metered Cost $TADMC_d$

$$TADMC_d = \begin{cases} UDMC_{Kd} & \text{if not on Transition} \\ MT_Y * UDMC_{Kd} & \text{if on Transition} \end{cases}$$

3.4.15. The Daily Metered Cost DMC_{Kd} is

$$DMC_{Kd} = \begin{cases} TADMC_{Kd} & \text{if not } SGES_d \text{ or } SER_d = 0 \\ -SGESSR_Y/(DIY * SER_d) & \text{if } SGES_d \text{ and } SER_d > 0 \end{cases}$$

3.4.16. The CMA will allocate the Daily Metered Cost and the Volume to Licensed Provider to whom it was Registered in respect of each Settlement Day. It will aggregate these volumes and charges, and report them in accordance with CSD0201.

3.5. Unmeasured Sewerage Supply Points - Overview

3.5.1. Consider the charges for Unmeasured Sewerage Supply Points, including both RV based charges and Re-assessed Charges.

3.5.2. The following Sewerage SPIDs are subject to Unmeasured charging:

- RV Based Charging
    - Sewerage SPIDs which are subject to transition charging and have a Related Water Supply Point with an active meter;
    - Sewerage SPIDs which are subject to transition charging and do not have a Related Water Supply Point with an active meter; and
    - Sewerage SPIDs which have been declared unmeasurable.
- Re-assessed Charging
    - Sewerage SPIDs which have been agreed are subject to Re-assessed Charging

Information on transition charging is provided in the Appendices to CSD0205.

3.6. RV Based Charges

RV Non-Volumetric Charges

3.6.1. The discounts for the SPID for each day d in the SPID Chargeable Period are Sewerage Schedule 3 ($SS3_d$), Schedule 29e ($29e$) and whether the SPID is eligible for the Scottish Government Exemption Scheme ($SGES_d$).

3.6.2. The SPID Settlement Chargeable Period has already been defined as the period time given by the days D_l^S, D_u^S.

3.6.3. The relevant SPID RV Unmeasurable Period is defined as the period of time for which either:

- The Sewerage SPID is subject to transition charging and has a Related Water Supply Point with an active meter
- The Sewerage SPID is subject to transition charging and does not have a Related Water Supply Point with an active meter
- The Sewerage SPID has been declared unmeasurable

and is likewise given by a pair of days D_l^{RV}, D_u^{RV}.

3.6.4. The SPID RV Unmeasurable Chargeable Period $D_l^C <= d < D_u^C$ is the (possibly empty) sub-period for which the RV Unmeasurable Period intersects the SPID Settlement Chargeable Period, and is given by D_l^C, D_u^C where

$$
\begin{aligned}
D_l^C &= max(D_l^{RV}, D_l^S) \\
D_u^C &= min(D_u^{RV}, D_u^S)
\end{aligned}
$$

3.6.5. If $D_l^C >= D_u^C$ then the SPID does not have an RV Unmeasurable Period for that RF Settlement Period.

3.6.6. For each each Settlement Day d in the SPID RV Unmeasurable Chargeable Period define the Rateable Value RV_d

3.6.7. In accordance with the Wholesale Scheme of Charges define the Sewerage Chargeable Meter Size ($SCMS_d$) which corresponds to RV_d, and each $SCMS_i$ corresponds to a unique Sewerage Meter Annual Non-Volumetric Charge ($SMANVC_i = SMANVC_i(SCMS_d)$).

3.6.8. The Unadjusted Sewerage Meter Based Charge ($USMBC_d$) is given by the table of Sewerage Meter Annual Non-Volumetric Charges as

$$
USMBC_d = \frac{SMANVC_i(SCMS_i) * (1 - VAC_d)}{DIY}
$$

3.6.9. The Unadjusted Discounted Sewerage Meter Based Charge ($UDSMBC_d$) is then given by

$$
UDSMBC_d = USMBC_D * (1 - SS3_d - S29e_d)
$$

3.6.10. For each Settlement Day d the Transition Adjusted Water Meter Based Charge $TAWMBC_d$ is

$$TASMBC_d = \begin{cases} (1 - MT_Y) * UDSMBC_{Kd} & \text{if the SPID is on Transition and has an Active meter} \\ UDSMBC_d & \text{if the SPID is on Transition and does not have} \\ & \text{an Active meter} \\ UDSMBC_d & \text{if the SPID has been declared Unmeasurable} \end{cases}$$

where MT_Y is the Metering Transition Percentage applicable for the Financial Year Y. For the Financial Year $Y = 2008\text{-}09$, $MT_Y = 0\%$, and for $Y = 2009\text{-}10$, $MT_Y = 33\%$. The percentage for other years as defined in the relevant Wholesale Charges Scheme.

3.6.11. The Water Meter Based Charge $WMBC_d$ is

$$WMBC_{Kd} = \begin{cases} TASMBC_{Kd} & \text{if not } SGES_d \text{ or } SER_d = 0 \\ -SGESSR_Y/(DIY * SER_d) & \text{if } SGES_d \text{ and } SER_d > 0 \end{cases}$$

where $SGESSR_Y$ is the SGES Sewer refund applicable for the Financial Year Y, and where SER_d is the number of Service Element Reports for the SPID.

3.6.12. The CMA will allocate the Meter Based Charge to the Licensed Provider for which the SPID was registered in respect of each Settlement Day. It will then aggregate Volumes and Charges, and report them in accordance with CSD0201.

RV Volumetric Charges

3.6.13. For each each Settlement Day d in the SPID RV Unmeasurable Chargeable Period define the Rateable Value RV_d

3.6.14. The equivalent Actual Sewerage Yearly Volume $ASYV_d$ given by

$$ASYV_d = \begin{cases} 0.95 * (0.0373 * RV_d - 24) * (1 - VAC_d) & \text{if } RV_d >= 650 \\ 0 & \text{otherwise} \end{cases}$$

and the equivalent Sewerage Derived Daily Volume $SDDV_d$ is given by

$$SDDV_d = \frac{ASYV_d}{DIY}$$

3.6.15. The same calculation used to derive AWA in section 3.3.26 can be used to derive an AWA_d for each day of the RV Unmeasurable Chargeable Period, based upon an equivalent whole year calculation and using the equivalent Actual Sewerage Yearly Volume $ASYV_d$ and the meter size $WCMS_d$.

3.6.16. The Unadjusted Daily Metered Cost $(UDMC_d) =$

$$UDMC_d = AWA_d * DDV_d * (1 - SS3_d - S29e_d)$$

3.6.17. Apply the Transition Adjustment to obtain the Transition Adjusted Daily Metered Cost $TADMC_d$

$$TADMC_d = \begin{cases} (1 - MT_Y) * UDMC_d & \text{if the SPID is on Transition and has an Active meter} \\ UDMC_d & \text{if the SPID is on Transition and does not} \\ & \text{have an Active meter} \\ UDMC_d & \text{if the SPID has been declared Unmeasurable} \end{cases}$$

3.6.18. The Daily Metered Cost DMC_d is

$$DMC_d = \begin{cases} TADMC_d & \text{if not } SGES_d \text{ or } SER_d = 0 \\ -SGESSR_Y/(DIY * SER_d) & \text{if } SGES_d \text{ and } SER_d > 0 \end{cases}$$

where $SGESSR_Y$ is the SGES Sewer refund applicable for the Financial Year Y, and where SER_d is the number of Service Element Reports for the SPID.

3.6.19. The CMA will allocate the Meter Based Charge to the Licensed Provider for which the SPID was registered in respect of each Settlement Day. It will then aggregate Volumes and Charges, and report them in accordance with CSD0201.

3.7. Re-assessed Charges

3.7.1. Re-assessed Charges were introduced on 1st April 2009. However, it should be noted that the method within the Central Systems for calculating Re-assessed Charges does not carry out any verification that the data applies for a period of time on or after the date of introduction of Re-assessed Charges.

3.7.2. Details of the calculation in the Central Systems will be added at a later stage to this CSD after the details of the calculation have been verified.

3.8. Property Drainage

3.8.1. This section applies to the Property Drainage charges.

3.8.2. The Discounts for the SPID for each day d in the SPID Chargeable Period are Sewerage Schedule 3 ($SS3_d$), Schedule 29e ($S29e_d$) and whether the SPID is eligible for Scottish Government Exemption Scheme ($SGES_d$).

3.8.3.   The SPID Settlement Chargeable Period has already been defined as the period time given by the days D_l^S, D_u^S. As above define the relevant Chargeable Period for Property Drainage.

3.8.4.   For each Settlement Day d in the relevant Chargeable Period define the Rateable Value RV_d and whether Property Drainage (PD_d) is chargeable:

$$PD_d = \begin{cases} 1 & \text{if Property Drainage is chargeable} \\ 0 & \text{if Property Drainage is not chargeable} \end{cases}$$

3.8.5.   As per the Wholesale Charges Scheme define the Annual Price Property Drainage per pound Rateable value (PDP).

3.8.6.   Then define the Unadjusted Property Drainage Charge $UPDC_d$ as

$$UPDC_d = PDP * PD_d * RV_d * (1 - VAC_d)/DIY$$

3.8.7.   The Unadjusted Discounted Property Drainage Charge $UDPDC_d$ is given by

$$UDPDC_d = UPDC_d * (1 - SS3_d - S29e_d)$$

3.8.8.   The Property Drainage Charge PDC_d is given by

$$PDC_d = \begin{cases} UDPDC_d & \text{if not } SGES_d \text{ or } SER_d = 0 \\ -SGESSR_Y/(DIY * SER_d) & \text{if } SGES_d \text{ and } SER_d > 0 \end{cases}$$

where as above $SGESSR_Y$ is the SGES Sewerage refund applicable for the Financial Year Y, and SER_d is the number of Service Element Reports for the SPID.

3.8.9.   The CMA will allocate the Property Drainage Charges to the Licensed Provider for which the SPID was registered in respect of each Settlement Day. It will then aggregate the volumes and charges, and report them in accordance with CSD0201.

3.8.10.   (***Note*** There are a small number of SPIDs on Area Based Property Drainage Charges. The calculation for them is the same as above with the price per area replacing the price per pound Rateable Value, and the area replacing the Rateable Value.

3.9.   Roads Drainage

3.9.1.   This section applies to the Roads Drainage charges.

3.9.2. The discounts for the SPID for each day d in the SPID Chargeable Period are Sewerage Schedule 3 ($SS3_d$), Schedule 29e ($S29e_d$) and whether the SPID is eligible for Scottish Government Exemption Scheme ($SGES_d$).

3.9.3. The SPID Settlement Chargeable Period has already been defined as the period time given by the days D_l^S, D_u^S. As above define the relevant Chargeable Period for Property Drainage.

3.9.4. For each Settlement Day d in the relevant Chargeable Period define the Rateable Value RV_d and whether Roads Drainage (RD_d) is chargeable:

$$RD_d = \begin{cases} 1 & \text{if Roads Drainage is chargeable} \\ 0 & \text{if Roads Drainage is not chargeable} \end{cases}$$

3.9.5. As per the Wholesale Charges Scheme define the Annual price for Roads Drainage per pound Rateable value (RDP).

3.9.6. The Unadjusted Roads Drainage Charge $URDC_d$ is

$$URDC_d = RDP * RD_d * RV_d * (1 - VAC_d)/DIY$$

3.9.7. The Unadjusted Discounted Roads Drainage Charge $UDRDC_d$ is given by

$$UDRDC_d = URDC_d * (1 - SS3_d - S29e_d)$$

3.9.8. The Roads Drainage Charge RDC_d is then given by

$$RDC_d = \begin{cases} UDRDC_d & \text{if not } SGES_d \text{ or } SER_d = 0 \\ -SGESSR_Y/(DIY * SER_d) & \text{if } SGES_d \text{ and } SER_d > 0 \end{cases}$$

where as above $SGESSR_Y$ is the SGES Sewerage refund applicable for the Financial Year Y, and SER_d is the number of Service Element Reports for the SPID.

3.9.9. The CMA will allocate the Roads Drainage Charges to the Licensed Provider for which the SPID was registered in respect of each Settlement Day. It will then aggregate the volumes and charges, and report them in accordance with CSD0201.

3.10. Miscellaneous Charges

3.10.1. This section applies to the following Miscellaneous Charges:

- Sewerage Services to Caravans

3.10.2.   Note that charges for Sewerage Services to Caravans have been removed from the 2010-2011 Wholesale Charges Scheme. The method for dealing with such charges remains within the Central Systems, but the relevant charges will be set to zero for Years where the charges have been so removed.

3.10.3.   The discounts for the SPID for each day d in the SPID Chargeable Period are Sewerage Schedule 3 ($SS3_d$), Schedule 29e ($S29e_d$) and whether the SPID is eligible for Scottish Government Exemption Scheme ($SGES_d$).

3.10.4.   The SPID Settlement Chargeable Period has already been defined as the period time given by the days D_l^S, D_u^S. As above the relevant Chargeable Period for Sewerage Services to Caravans.

3.10.5.   For each Settlement Day d in the relevant Chargeable period define the number of Caravans with Sewerage Services to Caravans SSC_d

3.10.6.   As per the Wholesale Charges Scheme define Annual Price Sewerage Services to Caravans ($SSCP$)

3.10.7.   Define the Unadjusted Sewerage Services to Caravans Charge $USSCC_d$ as

$$USSCC_d = SSCP * SSC_d * (1 - VAC_d)/DIY$$

3.10.8.   The Unadjusted Discounted Sewerage Services to Caravans Charge $UDSSCC_d$ is given by

$$UDSSCC_d = UWSCC_d * (1 - SS3_d - S29e_d)$$

3.10.9.   The Sewerage Services to Caravans Charge $SSCC_d$ is given by

$$SSCC_d = \begin{cases} UDSSCC_d & \text{if not } SGES_d \text{ or } SER_d = 0 \\ -SGESSR_Y/(DIY * SER_d) & \text{if } SGES_d \text{ and } SER_d > 0 \end{cases}$$

where as above $SGESSR_Y$ is the SGES Sewerage refund applicable for the Financial Year Y, and SER_d is the number of Service Element Reports for the SPID.

3.10.10. The CMA will allocate the Miscellaneous Charges to the Licensed Provider for which the SPID was registered in respect of each Settlement Day. It will then aggregate the volumes and charges, and report them in accordance with CSD0201.

3.11. Trade Effluent Charges

3.11.1. The process for calculating RF Trade Effluent Charges is given in CSD0206

A. Appendix

A.1. Matters arising from the Wholesale Charges Scheme

A.1.1. The following assumptions have been made in the implementing the various Wholesale Scheme of Charges. This Appendix is provided to clarify and formalise the adoption of the various assumptions.

A.1.2. *20mm Phasing Premium* This charge is applied for all years for SPIDs which have meters which are charged as 20mm meters (or smaller), but excluding meters with a chargeable size of 0mm.

A.1.3. *0mm Meters* Standard volume charges are applied to volumes associated with meters which have been set a chargeable size of 0mm. However, there is no Free Allocation or Capacity Volume associated with such meters, nor are any meter based charges applied.

A.1.4. *TDISC* Following clarification from the Commission, all non-volumetric charges are applied during periods of Temporary Disconnection, including meter based charges, roads drainage, property drainage and charges for miscellaneous services.

A.1.5. *NDA* Non Domestic Allowance is implemented in the Central Systems. Under this charging method the standard calculation for the sewerage supplied at a Sewerage Service Supply Point is replaced by the value of Non Domestic Allowance pertaining the associated Trade Effluent consent.

A.1.6. *TE Charges during Vacancy* To ensure that no charges are applied in respect of Trade Effluent during periods of Vacancy, Licensed Providers and Scottish Water need to ensure that either

- Trade Effluent DPID is disconnected; or
- a 100% DPID Schedule 3 discount is submitted for the DPID

in accordance with CSD0206. This CSD also indicates how TE Volumes should be submitted to ensure that they are allocated to the correct periods of time.

A.1.7. *SGES* For SPIDs which are flagged as exempt under the Scottish Government Exemption Scheme, a payment is made from Scottish Water to the Licensed Provider and all other charges from the Licensed Provider to Scottish Water are waived.

A.1.8. *RTS* For meters with a return to sewer allowance of 0%, all associated Foul Sewerage Meter based annual charges are waived.

A.1.9. *Re-assessed Charges* The Central Systems have the functionality in respect of the Re-assessed Charges which were introduced in 2009-10. There is no functionality which prevents data being submitted for a SPID which charge a SPID in 2008-09 with this method. It is a requirement on Market Participants not to submit data that would utilise this method in 2008-09.

A.1.10. *Water and Sewerage Services to Caravans* Charges for Water and Sewerage Services for Caravans have been removed in the WCS for 2010-11. The methods for applying such charges remain in the Central Systems. However, the relevant charges will be set to 0 to avoid charging.

A.1.11. *Property Drainage* The Central Systems have a charging method in respect of Property Drainage Charges whereby a few properties which have the Area Property are charged on an area basis. There are no methods for updating the relevant areas for these properties.

A.1.12. *Metered Volumes* The CSDs have built in specific methods for establishing metered volumes for Measured Supply Points. In particular it has built in rules in respect of Industry Level Estimates and YVE allowances. The CSDs also describe how meter volumes are interpolated, extrapolated and adjusted for vacancy.

A.1.13. *Multiple Discounts* Where both a Schedule 29e discount and a Schedule 3 discount are submitted in respect of a SPID, these discounts are added. No check is carried out that the discounts add to less than 100%.

A.1.14. *Proportionality* The Wholesale Charges Scheme defines charges for a volume V which is allocated across different charge bands (based upon a whole year's usage). The relevant charges bands are proportioned taking account of (i) the length of time a Supply Point (i) is as a Measured Supply Point and (ii) has the LUVA adjustments applied. Similarly, the the Phasing Premium is proportioned taking account of the length of time the SPIDs has meter(s) to which the Phasing Premium applies.

A.1.15. *AWA* The whole year AWA calculation is only applied for the Measured Supply Points. It is not applied for Unmeasured Supply Points or between Measured Supply Points and Unmeasured Supply Points.

A.1.16. *Application of LUVA Adjusment and Phasing Premium* The LUVA Adjustment and the Phasing Premium in the AWA calculations for the year. Other discounts including Schedule 3, Schedule 29e and SGES are applied per Settlement day.

A.1.17. *LUVA Adjusment* According to the Scheme of Charges the LUVA Adjustment applies Large User Volume Agreements (LUVA) as in 2006/07. The Central Systems applies the adjustment

to SPIDs in accordance with the way the LUVA flag is set for the period or sub-period of the Settlement Run.

A.1.18. *Negative Volumes* If a series of meter reads is not all monotonically increasing (taking account where applicable of the rollover algorithm) it is possible for the Central Systems to compute negative volumes for a SPID. If the total volume of water or sewerage supplied over the course of a year is negative, then the relevant AWA and the volumetric charges will be zero. However, where the total volume supplied to a SPID to be positive, but negative volumes occur either in respect of a single meter for the full year, or for the SPID for part of the year then the charges in respect of that single meter or that part of the year will be negative.

A.1.19. *TE Minimum Charges* Minimum Charges for Trade Effluent are applied per DPID rather than per SPID. They are pro-rated for the length of time a DPID is active over the course of the year. In respect of a single SPID with multiple DPIDs, a greater than minimum charge on one DPID does not offset charges on another DPID which does not reach the minimum.

A.1.20. *TE Minimum Charges* Where there are multiple LPs which share a DPID which needs to have minimum charges applied then the allocation of minimum charges is pro-rata on a daily basis, irrespective of volumetric charges occurred by each LP. See CSD0206 for details.

A.2. Variables

A.2.1. This section provides details of all the variables used in this CSD0207.

[Water] Allocated Tranche	VFA
Actual Daily Volume	ADV_{Kd}
Actual Sewerage Yearly Volme	$ASYV$
Actual Yearly Volume	AYV
Allocated Tranche	VFA
Annual Price Croft Outside Tap	$COTP$
Annual Price Croft Troughs and Drinking Bowls	$CTDBP$
Annual Price Farm Outside Tap	$FOTP$
Annual Price Farm Troughs and Drinking Bowls	$FTDBP$
Annual Price Property Drainage	PDP
Annual Price Roads Drainage	RDP
Annual Price Water Services to Caravans	$WSCP$
Annual Price Sewerage Services to Caravans	$SSCP$
Annual Volumes(per charge band)	$VA1, VA2, VA3$
Annual Weighted Average	AWA
Capacity Volume Charge	$CVCHARGE$
Capacity Volume Price	CVP
Capacity Volume Threshold	CVT_i
Croft	$CROFT_d$

Daily Metered Cost	DMC_{Kd}, DMC_d
Daily Volume	DV_{Kd}, DV_{Ld}
Days in Year	DIY
Derived Daily Volume	DDV_{Kd}
DPID Active Period	(D^A_{Tl}, D^A_{Tu})
DPID Chargeable Period	(D^C_{Tl}, D^C_{Tu})
Estimated Daily Volume	EDV_{Kd}
Farm	$FARM_d$
Industry Level Estimates	ILE
Lower Meter Size	LMS
LUVA Adjustment	$LACHARGE$
LUVA Annual Volume	LAV
LUVA Annual Volume(per charge band)	$LVA1, \quad LVA2,$ $LVA3$
LUVA Charge Bands	$LV1, LV2$ and $LV3$
LUVA Chargeable	LC_d
LUVA Phasing Percentages	$LPP1, \quad LPP2$ and $LPP3$
LUVA Proportion	$LUVAP$
LUVA Volume Limits	$VLL, V1$ and $V2$
Meter Advance Chargeable Days	$MACD$
Meter Advance Period	MAP
Meter Advance Volume	MAV
Meter Based Charge	MBC_{Kd}
Meter Capacity Volume Threshold	$MCVT_{Kd}$
Meter Free Allocation	MFA, MFA_{Kd}
Meter Sewerage Capacity Volume Threshold	$MSCVT_{Kd}$
Meter Sewerage Free Allocation	$MSFA, MSFA_{Kd}$
Meter Transition Percentage	MT, MT_Y
Meter Size	MS_i
Non Domestic Allowance	NDA_{Td}
Number of table items	n_T
Outside Taps	OT_d
Outside Taps Charge	OTC_d
Phasing Premium Charge	$PPCHARGE$
Premium Chargeable	PC_{Kd}
Premium Percentage	PP
Premium Volume	PVA
Property Drainage	PD_d
Proportional Capacity Volume Threshold	$PCVT$
Proportional Free Allocation	PFA
Proportional LUVA Volume limits	$PLVLL, \quad PLV1,$ $PLV2$
Proportional Phasing Premium Free Allocation	$PPPFA$
Proportional Premium Volume Limit	$PPVL$
Proportional Volume Limits	$PV1, PV2$

Return to Sewerage	RTS_{Kd}
RF Settlement Period	$D_l^{RF},\ D_u^{RF}$
Roads Drainage	RD_d
Rateable Value	RV_d
RV Unmeasurable Period	$D_l^{RV},\ D_u^{RV}$
RV Unmeasurable Chargeable Period $D_l^C,\ D_u^C$	
Schedule 29e Discount	$S29e_d$
Settlement Day	d
Service Element Reports	SER
Sewerage Allocated Tranche	SFA
Sewerage Capacity Volume Charge	$SCVCHARGE$
Sewerage Capacity Volume Price	$SCVP$
Sewerage Capacity Volume Thresholds	$SCVT_i$
Sewerage Chargeable Meter Size	$SCMS_{Kd}$
Sewerage Derived Daily Volume	$SDDV_{Kd}$
Sewerage Meter Chargeable	SMC_{Kd}
Sewerage Meter Annual Non-Volumetric Charge	$SMANVC_i$
Sewerage Proportional Capacity Volume Threshold	$SPCVT$
Sewerage Proportional Free Allocation	$SPFA$
Sewerage Standard Volume Charge	$SSVCHARGE$
Sewerage Standard Volume Price	$BS1$
SPID Chargeable Period	$D_l^A,\ D_u^A$
SPID Settlement Chargeable Period	$D_l^S,\ D_u^S$
SPID Water Meter Chargeable	$SWMC_d$
Sewerage Schedule 3 Discount	$SS3_d$
Sewerage Services to Caravans	SSC_d
Sewerage Services to Caravans Charge	$SSCC_d$
SGES Refund Applicable	$SGES_d$
SGES Water Refund	$SGESWR$
SGES Sewerage Refund	$SGESSR$
Standard Volume Charge	$SVCHARGE$
T17 Meter Chain	K
T17 Meter Chain "Active Period"	$(D_{Kl}^A,\ D_{Ku}^A)$
T17 Meter Chain Chargeable Period	$D_{Kl}^C,\ D_{Ku}^C$
Tabular Meter Size	TMS_{Kd}
Temporarily Disconnected	$TDISC_d$
Total LUVA Days	TLD
Total Premium Days	TPD
Total Sewerage Meter Chargeable	$TSMC_d$
Total Water Meter Chargeable Days	$TWMCD$
Transition Adjusted Daily Metered Cost	$TADMC_{Kd}$
Transition Adjusted Sewerage Meter Based Charge	$TASMBC_{Kd}$
Transition Adjusted Water Meter Based Charge	$TAWMBC_{Kd}$
Troughs and Drinking Bowls	TDB_d
Troughs and Drinking Bowls Charge	$TDBC_d$

Unadjusted Actual Daily Volume	$UADV_{Kd}$
Unadjusted Daily Metered Cost	$UDMC_{Kd}$
Unadjusted Discounted Outside Taps Charge	$UDOTC_d$
Unadjusted Discounted Property Drainage Charge	$UDPDC_d$
Unadjusted Discounted Roads Drainage Charge	$UDRDC_d$
Unadjusted Discounted Troughs and Drinking Bowls Charge	$UDTDBC_d$
Unadjusted Discounted Sewerage Meter Based Charge	$UDSMBC_{Kd}$
Unadjusted Discounted Sewerage Services to Caravans Charge	$UDSSCC_d$
Unadjusted Discounted Water Meter Based Charge	$UDWMBC_{Kd}$
Unadjusted Discounted Water Services to Caravans Charge	$UDWSCC_d$
Unadjusted Estimated Daily Volume	$UEDV_{Kd}$
Unadjusted Outside Taps Charge	$UOTC_d$
Unadjusted Property Drainage Charge	$UPDC_d$
Unadjusted Roads Drainage Charge	$URDC_d$
Unadjusted Sewerage Meter Based Charge	$USMBC_{Kd}$
Unadjusted Sewerage Services to Caravans Charge	$USSCC_d$
Unadjusted Troughs and Drinking Bowls Charge	$UTDBC_d$
Unadjusted Water Meter Based Charge	$UWMBC_{Kd}$
Unadjusted Water Services to Caravans Charge	$UWSCC_d$
Uncapped Premium Annual Volume	$UPAV$
Upper Meter Size	UMS
Vacant	VAC_d
Vacancy Adjusted SPID Water Meter Chargeable	$VASWMC_d$
Vacant	VAC_d
Water Chargeable Meter Size	$WCMS_{Kd}$
Water Schedule 3 Discount	$WS3_d$
Water knots	$V1, V2$
Water Meter Annual Non-Volumetric Charge	$WMANVC_i$
Water Meter Chargeable	WMC_{Kd}
Water Services to Caravans	WSC_d
Water Services to Caravans Charge	$WSCC_d$
Water Standard Volume Prices	$B1, B2$ and $B3$
Yearly Proportion	YP
Year	Y
YVE	YVE

A.3. Meter Advance Periods

A.3.1.   The terms "Meter Pre-Advance Periods", "Meter Advance Periods", and "Meter Post-Advance Periods" are all formally defined in the Market Code, Schedule 1. The following diagrams are provided as an aid to the correct interpretation of each of these terms. In the event of a conflict between any of these terms and the diagrams below, the definition in the Market Code shall prevail.
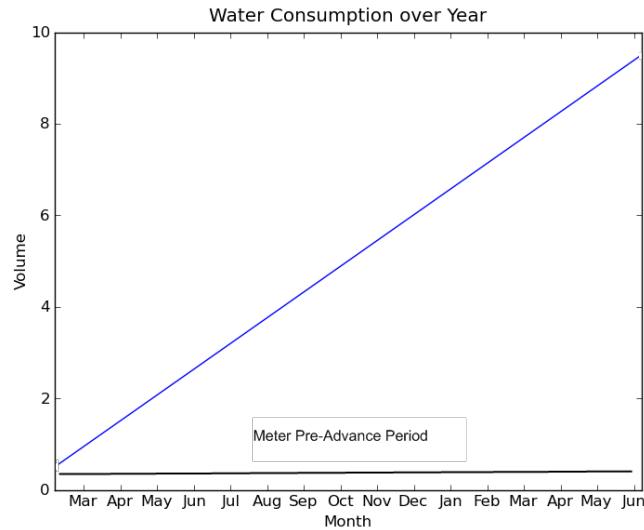

Figure 1: A Single Meter which is Active in Central Systems (from cutover). No reads. Whole period is a "Meter Pre-Advance Period" Volumes estimated from either: YVE if submitted, else Industry Level Estimates (ILE).

Note – *as per definition; changes to meter Water or Chargeable Sewerage Size would force multiple Meter Pre-Advance Periods in all the examples.*
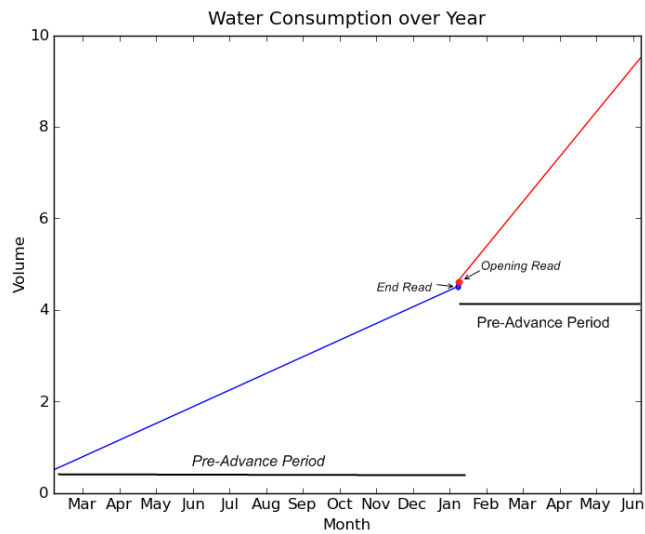
Figure 2: A T17 Meter Chain which is Active in the Central Systems (from cutover). Two Meter Pre-Advance Periods First meter has a single "End" Read. Volumes estimated from appropriate YVE or ILE. Second meter has a single "Opening" Read. Volumes estimated from appropriate YVE or ILE. *Note 1-* YVE is set separately for each meter. *Note 2* - a change in meter size for either meter would force a new Meter Pre-Advance Period
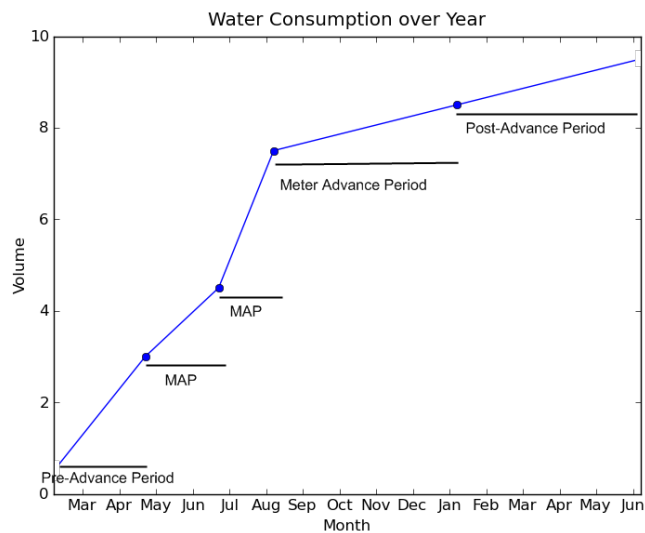

Figure 3: A single meter which is Active in the Central Systems (from cutover) with several reads. The diagram shows (i) A Meter Pre-Advance Period; (ii) Several Meter Advance Periods; and (iii) A Meter Post Advance Period