Streetlights Data CSV File Specification

27 November 2013

Document Control

Version	Date	Author	Summary of Change
1	30/11/2011	Jack Edgar	Original Draft
1A, 1B	8/12/2011	Jack Edgar	Revised draft following WP walkthrough
1C	12/12/2011	Jack Edgar	Revised draft following Synergy walkthrough
1D	14/12/2011	Jack Edgar	Revised draft following Synergy feedback
2	16/12/2011	Jack Edgar	Approved version
2A	9/1/2012	Jack Edgar	Add the original Detail fixed format file
2B	16/1/12	Jack Edgar	Removed filler fields in the Asset Detail CSV file and added SUBURB to the Bill Ready file.
2C	20/1/2012	Jack Edgar	Removed the fields CURR-LGB-FTRK, CURR-LGB-FTRK from the Streetlight_Asset_Change file and LGB-FTRK from the Bill_Ready file. Split Billing-Days into Current and Previous Financial Years. Removed reference to CDATA special characters
2D	06/02/2012	Jack Edgar	Changed Address fields to be mandatory
2E	06/02/2012	John Gill	Updated section that defines the zip file name and the naming of the files within the zip file.
3	09/02/2012	John Gill	Removed changes file definition, updated bill ready file specification.
4	09/02/2012	John Gill	Minor modifications.
5	14/02/2012	John Gill	Modified charges file to accommodate multiple line items when charges cross pricing change boundaries.
5A / 5B	29/02/2012	Jack Edgar	Updates following review of new file layouts.
5C	1/3/2012	Jack Edgar	Updates following WP Team review
5D	7/3/2012	Jack Edgar	Page10 confirm WP team, p22 Example 9 fix profile1
6	14/3/2012	Jack Edgar	Published Signed off version
7	14/3/2012	Kim Verney	Imported old version as incorrectly saved PDF to WORD document - Please see PDF for signed off version
7A	6/8/2012	Jack Edgar	Example 6 switched the Change Types
8	3/10/2012	John Gill	Updated billing formula for CFL lamp-types
8A	4/10/2012	Jack Edgar	Added new fields to the Charges file (Lamp-Status and Luminaire-Style), updated billing calculation when Lamp-Status inactive.
8B	15/10/2012	Jack Edgar	Removed reference to RAOD-CTGRY in the Details file. Removed Reference to SL Details file (original) in Sections 4.1 and 5.1 as these have been provided under a separate service call. Made Location in the Details File as optional.
8C	15/10/12	Jack Edgar	Moved Luminaire and Lamp-Status to the end of the Details and Charges files
8D	28/10/2012	Jack Edgar	Replaced the layouts of the three CSV files (see DM9921564)
9	15/11/2013	Jack Edgar	Updated versions in Document History (this table) to match DM.

Version	Date	Author	Summary of Change
9A	25/11/2013	Jack Edgar	Clarification detail regarding conditional fields, LGB-Code and name to be mandatory for the Charges file and added reference to the Access Arrangement Price List to show details of Lamp-Type and Wattage.

1 Introduction

There is a requirement to transfer Streetlight billing details from Western Power to Synergy. This specification defines the formats and usage of the CSV files and the rules associated with the exchange of the files using the File Transfer Protocol (FTP).

2   CSV Format Rules

A CSV file contains the values in a table as a series of ASCII text lines organized so that each column value is separated by a comma from the next column's value, and each row starts on a new line.

This section specifies CSV format details.

2.1   Character Set

The character set that is to be used within a CSV file is ASCII 7-bit.

No Unicode characters are allowed.

2.2   Column Header

The first record in the CSV file will contain column header text.

2.3   Footer

CSV files will not contain a footer record.

2.4   Literals Treatment

The CSV import application shall be capable of parsing literals whether they are surrounded by double-quotes or not. A CSV import tool/parser shall interpret the following two rows from a CSV file analogously:

> 123,"This is a sample field",456
>
> 123,This is a sample field,456

If a literal containing double-quotes needs to be inserted into a CSV, the entire field must be surrounded by double-quotes in addition to prefixing each contained double-quote with another one, e.g. in order to insert the field

> This is a sample "quoted" field

into a CSV row, the following format shall be used:

> "This is a sample ""quoted"" field"

This treatment allows for the incorporation of commas and quotes into a CSV element, if necessary. As the "lowest denominator", the format produced by Microsoft® Excel matches this treatment of literals.

2.5   Line Breaks

The CSV components shall have a combination of Carriage Return (CR, ASCII decimal code 13) and Line Feed (LF, ASCII decimal code 10) at the end of each line.

Empty lines, i.e. lines containing just CR and LF, are not allowed.

2.6 Values Separator

A comma "," is to be used to separate values in CSV file. If a comma shall occur inside a literal, then the entire literal shall be surrounded by double quotes.

No trailing commas are allowed at the end of each line, i.e. the number of value separators in any one row will always be:

number_of_values – 1.

2.7 Optional Elements

Where a CSV element is defined as "optional", a placeholder for that element shall be present in a CSV file row.

The following example demonstrates this treatment in a 7-value CSV row for which 6th and 7th values are defined as optional.

abcdef1,defgh1,1234,123.45,qwertyuio,,

abcdef2,defgh2,6543,234.56,qwertyuio,,

2.8 Numeric Values

2.8.1 Positive and Negative Values

Positive numbers in CSV file shall be unsigned.

Negative numbers shall be prefixed with a negative sign '-'.

2.8.2 Leading and Trailing Zeroes

There shall be no leading zeroes unless a specific data format requires this. Trailing zeroes are allowed only when the scale value requires this.

2.8.3 Format

The numeric format is defined as numeric[[s](precision [, scale])].

[s] is the negative sign '-', which is included to indicate a negative number.

The precision and scale determine the range of values that can be stored in a numeric field:

a) The precision specifies the maximum number of decimal digits that can be stored in the column. It includes all digits, both to the right and to the left of the decimal point.

b) The scale specifies the maximum number of digits that can be stored to the right of the decimal point. The scale shall be less than or equal to the precision.

c) The number of digits to the left of the decimal point cannot exceed

precision – scale

Below are examples of valid values for a numeric type defined as numeric(s5,3)

> 12.345
>
> 12.000
>
> 0
>
> -12.345
>
> 12
>
> 12.100
>
> 12.0

Here are some examples of *invalid* values for the type defined as numeric(s5,3):

> 1,200
>
> 12-
>
> 12.345678
>
> 123456.78

2.8.4 Dollar Amounts

Dollar amounts shall not use any dollar sign ("$") either as a prefix or a suffix.

Dollar amounts are assumed to be in Australian currency, and shall not use a currency designator (e.g. AUD) either as a prefix or a suffix.

2.8.5 Date

Except for DFIS timestamps, date elements will be expressed in the format 'YYYYMMDD'.

2.8.6 Date/time

Except for DFIS timestamps, date/time and time elements will be expressed in the format 'YYYYMMDDHHMMSS'.

2.8.7 Timestamps

DFIS Timestamps will be expressed in the format YYYY-MM-DD-HH.MM.SS.DDDDDD, where DDDDDD is the decimals of seconds.

2.9 Tab Characters

Tab characters shall not be used in CSV files.

2.10 End of File Marker

The application that parses CSV shall be able to handle End-Of-File mark (EOF, ASCII decimal code 26) at the end of the file, if present.

3 CSV File definitions

The Streetlight data comprises the delivery of the following files:

- Streetlight Asset Detail
- Streetlight Asset Charges
- Streetlight Bill Ready Detail

The field definitions for each file are provided below.

Understanding the billing charge calculation is complex. The section *Current process > Streetlight Billing Charge Calculations* in the WR3798 Streetlights Data Improvements BRD is recommended pre-requisite reading to better understand the overall concepts of the files.

3.1 Streetlight Asset Detail File

This file has a similar layout as the Detail file currently being sent to Synergy.

NOTE: The Size column in the table below is for information only and indicates the maximum possible size of the contents.

Field	Size	Type	Mandatory?	Comments
LGB-CODE	3	CHAR	Y	The local government body such as a council or Main Roads Department (MRD), e.g. 101, MRD
LGB-NAME	35	CHAR	Y	The name of the LGB e.g. ARMADALE
LDEC-FLAG	1	CHAR	N	Decorated lamp flag - * if its LDEC
LAMP-ID	10	CHAR	Y	pickid of lamp
TARIFF	3	CHAR	Y	RT9
WATTAGE	5	CHAR	Y	e.g. 250, for a full list see the Western Power website: Corporate information > About us > Access Arrangement > 2012/13 Price List Information (pdf)
LAMP-TYPE	5	CHAR	Y	e.g. HPS, for a full list see the Western Power website: Corporate information > About us > Access Arrangement > 2012/13 Price List Information (pdf)
BURN-CODE	1	CHAR	Y	Burn Codes are: C = 11.31 burn hours M = 6.56 burn hours A = 5.31 burn hours
INSTL-DT	8	CHAR	N	bulb installed date (for what purpose??)
LOCATION	30	CHAR	N	location of lamp
STREET	30	CHAR	Y	street
SUBURB	30	CHAR	Y	suburb
DISB-NAME	30	CHAR	Y	district boundary name that lamp is in e.g. Fremantle
LUMINAIRE-STYLE	4	CHAR	C	=Luminaire Style If Lamp-Type = "CFL", one of: SE, BH, KN =Blank for other Lamp-Types

3.2 Streetlight Charges File

This contains the lamp details, billing days and charge amounts for each individual lamp.

NOTE: Mandatory field is either 'Y' for mandatory, 'N' for optional and 'C' for Conditionally Mandatory on some other value. Refer to comments for rule where condition makes value mandatory.

3.2.1 File Layout

Field	Size	Type	Mandatory?	Comments
LAMP-ID	10	CHAR	Y	The unique pickid of the streetlight asset, with leading zeros. e.g. 0000038099
ASSET-CHANGE-TYPE [2]	1	CHAR	Y	Type of change: A = Add R = Remove C = Change N = No Change For Add, Remove or Change events several SL Charges records may be created. See *Appendix 1 – Interpreting Streetlight files* for further details.
ASSET-CHANGE-EFF-DATE [2]	8	CHAR	Y	For Add, Remove, or Change events this is the date when the event occurred. For records created because of a change to the price list, this is the date of the new price list. The date may also be the first day of the billing period. Refer to *Appendix 1 – Interpreting Streetlight files* for examples on setting this date. The format is YYYYMMDD, e.g. 20110419.
LDEC-FLAG	1	CHAR	N	Decorated lamp flag - * if its LDEC
TARIFF	3	CHAR	Y	Always RT9 for Streetlights
WATTAGE [2]	5	CHAR	Y	For refunds, the wattage of the original lamp profile. For charges, the wattage of the new lamp profile. e.g. 250, for a full list see the Western Power website: Corporate information > About us > Access Arrangement > 2012/13
LAMP-TYPE [2]	5	CHAR	Y	For refunds, the LAMP-TYPE of the original lamp profile. For charges, the LAMP-TYPE of the new lamp profile. e.g. HPS, for a full list see the Western Power website: Corporate information > About us > Access Arrangement > 2012/13 Price List Information (pdf)
BURN-CODE [2]	1	CHAR	Y	Burn Codes are: C = 11.31 burn hours A = 6.56 burn hours

Field	Size	Type	Mandatory?	Comments
				M = 5.31 burn hours For refunds, this is the BURN-CODE of the original lamp profile. For charges, this is the BURN-CODE of the new lamp profile.
LOCATION	30	CHAR	N	A description of the location of lamp.
STREET	30	CHAR	N	The street where the lamp is located.
SUBURB	30	CHAR	Y	The suburb where the lamp is located.
DISB-NAME	30	CHAR	Y	Identifies the district boundary name where the lamp is located. e.g. Fremantle
LGB-CODE [2]	3	CHAR	Y	The Local Government Agency code (eg 101) or Main Roads Department (MRD), LGB-Code changes are made on the first day of the billing period and two records are created. The first record is the previous LGB-Code and has an ASSET-CHANGE-TYPE of "N". The second record is the current LGB-Code and has an ASSET-CHANGE-TYPE of "C". e.g. 101, MRD
LGB-NAME	35	CHAR	Y	The Local Government Agency name of the LGB-Code or Main Roads Department. e.g. ARMADALE
BILLING-DAYS [2]	7	CHAR	Y	The accumulated days of usage for the *price-period*[1]. If an amount is being reversed (refunded), the Billing-Days will be negative.
BURN-HOURS	5	CHAR	Y	Based on BURN-CODE. = 11.31 IF **BURN-CODE** == C = 6.56 IF **BURN-CODE** == A = 5.31 IF **BURN-CODE** == M
ASSET-PRICE-LIST-DATE	8	CHAR	Y	The date when the asset price took effect.
KWH	7	CHAR	Y	The accumulated kilowatt hours for the *price-period*[1]. = **WATTAGE** * **BILLING-DAYS** * **BURN-HOURS** / 1000
DISTRIBUTION-FIXED-CHARGE [3]	12	CHAR	Y	= (**BILLING-DAYS** * **PRICELIST[PERIOD, "D FC"])** **Calculated to five decimal places but written to the file rounded to two decimal places.**
DISTRIBUTION-VARIABLE-CHARGE [3]	12	CHAR	Y	= (**KWH** * PRICELIST[PERIOD, "DV"]) **Calculated to five decimal places but written to the file rounded to two decimal places.**

Field	Size	Type	Mandatory?	Comments

ASSET-CHARGE [3]	12	CHAR	Y	= (**BILLING-DAYS**
				* PRICELIST[PERIOD, CONCAT
				      (WATTAGE, LAMPTYPE,
				      IIF(LAMP-TYPE ='CFL', LUMINAIRE, ""))
				    ])
				Calculated to five decimal places but written to the file rounded to two decimal places.

TRANSMISSION-VARIABLE-CHARGE [3]	12	CHAR	Y	= (**KWH** * PRICELIST[PERIOD, "TV"]) **Calculated to five decimal places but written to the file rounded to two decimal places.**
TOTAL-EX-GST [2]	12	CHAR	Y	= **DISTRIBUTION-FIXED-CHARGE** + **DISTRIBUTION-VARIABLE-CHARGE** + **ASSET-CHARGE** + **TRANSMISSION-VARIABLE-CHARGE** **Calculated to five decimal places but written to the file rounded to two decimal places.**
GST	12	CHAR	Y	GST (10%) of TOTAL-EX-GST. = **TOTAL-EX-GST** * 0.1 **Calculated to five decimal places but written to the file rounded to two decimal places.**
GRAND-TOTAL	12	CHAR	Y	TOTAL with GST. = **TOTAL-EX-GST** + **GST** **Calculated to five decimal places but written to the file rounded to two decimal places.**
LUMINAIRE-STYLE	4	CHAR	C	=Luminaire Style If Lamp-Type = "CFL", one of: SE, BH, KN =Blank for other Lamp-Types

[1] *Price-period* is the respective date range for a given SL profile and price combination (see the BRD for more details).

[2] Profile and LGB changes that occur on the first day of the current billing period require a record with: Change-Type = "N", Asset-Eff-Date = 25th of the month, Previous Profile details, Previous LGB-Code/LGB-Name and zero billing amounts.

[3] Billing amounts are only calculated after the lamp is first energised, that is when the ASSET-CHANGE-EFF-DATE is not null or [the ASSET-CHANGE-EFF-DATE is null and the LAMP-STATUS is "A"]

3.2.2 Exception handling

When processing the Adjustments file exception situations have been identified where there is insufficient data to perform a full conversion to the new format. The following rules define the actions to follow when one of these exceptions occur:

Rule	Definition/Description

1	For any removals, changes or additions that do not have a valid adjustment record, treat them as if they occurred on the 14th of the month.
2	LGB changes occur on the 1st day of the billing period.
3	For any records with an effective date greater than one year assume 365 days as this is the maximum number of days that can be charged (credit or debit) is 365 days (one year).
4	Where there are multiple adjustments for an addition, take the dates from the first adjustment. The SL was assumed to be installed on the original date but with incorrect details which have subsequently been rectified.
5	Where there are multiple adjustments for a removal, take the dates from the last adjustment. The SL is assumed to be removed on the last record date.
6	Where there are multiple adjustments for a change, take the dates from the first adjustment. The assumption is that if a streetlight changes multiple times in a month it's a clerical fix (e.g. 80W CF -> 240WMe -> 100W CF).
7	If there are any issues with data (e.g. a streetlight is added/removed/changed where the effective date is in the future), then they are omitted from the charges and bill ready files and details are emailed to the WP Network Access Billing team for review and action.

3.2.3 Scenarios

Appendix 1 - Interpreting Streetlight files shows examples of SL Charges records that are created for various Add, Remove, Change and No Change scenarios.

3.3   Streetlight Bill Ready File

This contains the rolled up changes by LGB-CODE, WATTAGE, LAMP-TYPE and BURN-CODE and SUBURB.

NOTE: Mandatory field is either 'Y' for mandatory, 'N' for optional and 'C' for Conditionally Mandatory on some other value. Refer to comments for rule where condition makes value mandatory.

Field	Size	Type	Mandatory?	Comments
LGB-CODE	3	CHAR	Y	The three-digit numeric code of the local government body such as a council (eg. 101) or a Main Roads Department code (eg. MRD) e.g. 101, MRD
LGB-NAME	35	CHAR	Y	The name of the LGB e.g. ARMADALE
SUBURB	30	CHAR	Y	The suburb where the lamps are located.
WATTAGE	5	CHAR	Y	e.g. 250
LAMP-TYPE	5	CHAR	Y	e.g. HPS
BURN-CODE	1	CHAR	Y	Burn Codes are: C = 11.31 burn hours A = 6.56 burn hours M = 5.31 burn hours
TARIFF	3	CHAR	Y	Streetlights always have the tariff of 'RT9'.
COUNT-NUM	9	CHAR	Y	The number of assets of this profile for this LGB in this Suburb of a particular lamp type (WATTAGE, LAMP-TYPE and BURN-CODE).
BILLING-DAYS-TOTAL	7	CHAR	Y	The accumulated days of usage. The rolled up number of billing says for the profile at the set asset price.
BURN-HOURS	5	CHAR	Y	Based on BURN-CODE. = 11.31 IF **BURN-CODE** == C = 6.56 IF **BURN-CODE** == A = 5.31 IF **BURN-CODE** == M
ASSET-PRICE-LIST-DATE	8	CHAR	Y	The date when the asset price took effect.
KWH	7	CHAR	Y	Rollup of same value from charges file.
DISTRIBUTION-FIXED-CHARGE	12	CHAR	Y	Rollup of same value from charges file.
DISTRIBUTION-VARIABLE-CHARGE	12	CHAR	Y	Rollup of same value from charges file.
ASSET-CHARGE	12	CHAR	Y	Rollup of same value from charges file.
TRANSMISSION-VARIABLE-CHARGE	12	CHAR	Y	Rollup of same value from charges file.
TOTAL-EX-GST	12	CHAR	Y	Rollup of same value from charges file.

Field	Size	Type	Mandatory?	Comments
GST	12	CHAR	Y	Rollup of same value from charges file.
GRAND-TOTAL	12	CHAR	Y	Rollup of same value from charges file.
LUMINAIRE-STYLE	4	CHAR	C	=Luminaire Style If Lamp-Type = "CFL", one of: SE, BH, KN =Blank for other Lamp-Types

4 FTP Transfer Rules

All files are to be sent using File Transfer Protocol (FTP) to the address prescribed by IT.

The FTP account is exclusively for the streetlight zip file and therefore all files will be placed in the root directory of the account.

This specification defines both business rules and technical requirements for:

- The naming of the files being FTP'ed
- The file format rules

4.1 File Naming Rules

The names of the files must adhere to the following format:

File	File Name	Format
SL Asset Detail File	YYYYMM_sl_details.csv	Refer to section 3.1
SL Asset Charge File	YYYYMM_sl_charge.csv	Refer to section 0
SL Bill Ready File	YYYYMM_sl_bill_ready.csv	Refer to section 3.3

4.2 File Formatting Rules

The following rules relate to the streetlight billing data via FTP:

a) Network Operator will send and receive all Network Billing transactions via a file sent using FTP. The format of the file is specified in the sections 2 and 3 of this document.

b) All Billing files will have a ".csv" extension.

c) All Billing files will be compressed into one zip file.

d) The compressed file must have an extension of ".zip" and be named:

YYYYMM_Vn_streetlights.zip

e) The zip file with a temporary filename is to be copied to the FTP Server and then renamed with the correct extension to prevent synergy picking up the file before it is ready. For example, the file might initially be written as 'YYYYMM_Vn_streetlights.zip.tmp' and then renamed as 'YYYYMM_Vn_streetlights.zip'.

f) The file name of each streetlight billing file will comprise of the following components:

- YYYY – The Year that the streetlight billing data relates to.

- MM – The Month that the streetlight billing data relates to.

- Vn – The version of the file for the given year and month. This is used in the event that the streetlight file needs to be re-generated for a given month. The 'V' is a literal value, and the 'n' will start at 1, and increment each file the file is re-generated.

5 Appendices

5.1 Appendix 1 – Interpreting Streetlight files

5.1.1 Charges, Refunds and the Price-period

If a streetlight add, removal or change event occurred when a different price list was active the calculation must *refund* the old charge amount and *charge* the calculated amount at the new price. Similarly, if the SL profile changes the calculation must *refund* the amounts based on the old SL profile and *charge* the amount based on the new SL profile.

So if either the SL profile **or** the price list changes then respective refunds and charges for the impacted billing period have to be calculated.

The following diagram explains the concept of *Price-periods*. This particular example assumes that there was a change to a streetlight in a previous billing period but it was not logged until the current billing period.

The top row is the timeline and shows the current billing period on the right and previous billing periods (up to a maximum of one year) on the left.
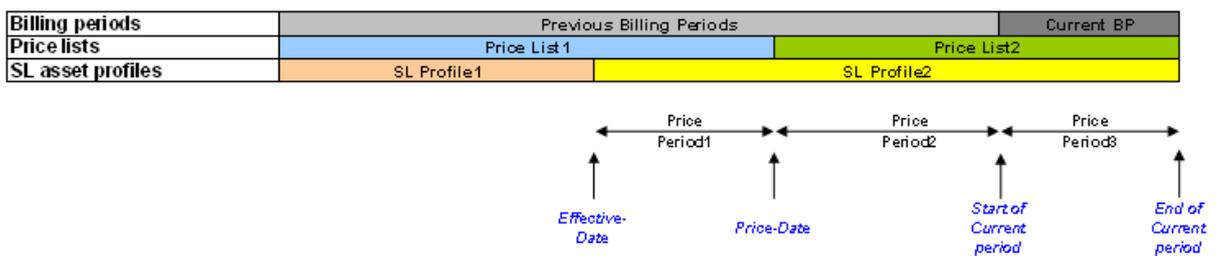
The second row shows there have been two price lists during the year:

The third row shows the profile of a streetlight was changed in a previous period from SL Profile1 to SL Profile2.

Since the effective date of the change there are three *Price-periods* in this example:
- *Price-period1* from the effective date of the change to the last date of the old price list
- *Price-period2* from the first day of the new price-list to the start of the current billing period
- *Price-period3* - the current billing period

In this example, assume that the streetlight has already been billed for the previous billing periods based on the old streetlight profile <u>and</u> the price list that was in effect at the time of the billing. The system must now refund these amounts that have already been billed and apply the new billing amounts using the updated information. The system must also bill for the current period.

So the system will create the following records:
- *A refund for Price-period1 using PriceList1 and SL Profile1*
- *A refund for Price-period2 using PriceList2 and SL Profile1*

- *A charge for Price-period1 using PriceList1 and SL Profile2*
- *A charge for Price-period2 using PriceList2 and SL Profile2*
- *A charge for Price-period3 using PriceList2 and SL Profile2*

The price list and profile for the last two records are the same and the system will combine the billing days and charges for these two records into one record.

5.1.2 Scenario Examples

Following are several examples showing the records created for a number of add, remove, change and no change scenarios. The first diagram shows the set-up and under this is a table of the SL Charges records created.
Note that the Price Period (PP) column is not an actual field in the SL Charges file but is included to explain the relationship between the diagram and the records.

Example 1 - SL Add in CURRENT billing period and NO price change
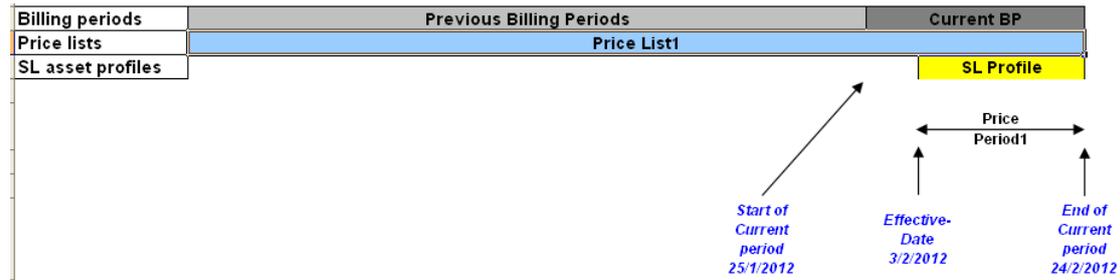
Rec No	Price Period (PP)	LampId	Effective-Date	LGB-Code	Change-Type	Profile	Price List	Billing Days	Billing Amounts
1	PP1	LampId1	3/02/2012	114	A	SL-Profile	PriceList1	22	+ve (Charge)

Eample 2 - SL Add in PREVIOUS billing period and NO price change
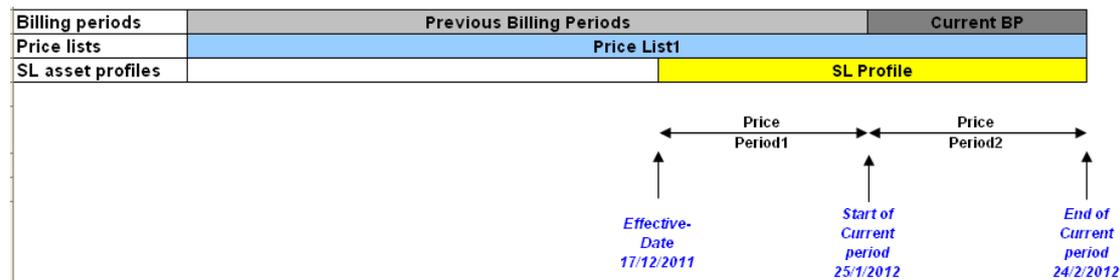
Rec No	Price Period (PP)	LampId	Effective-Date	LGB-Code	Change-Type	Profile	Price List	Billing Days	Billing Amounts
1	PP1+PP2	LampId1	17/12/2011	114	A	SL Profile	PriceList1	70	+ve (Charge) [1]

[1] Details previous and current billing period charges have been consolidated

Example 3 - SL Add in PREVIOUS billing period AND a price change
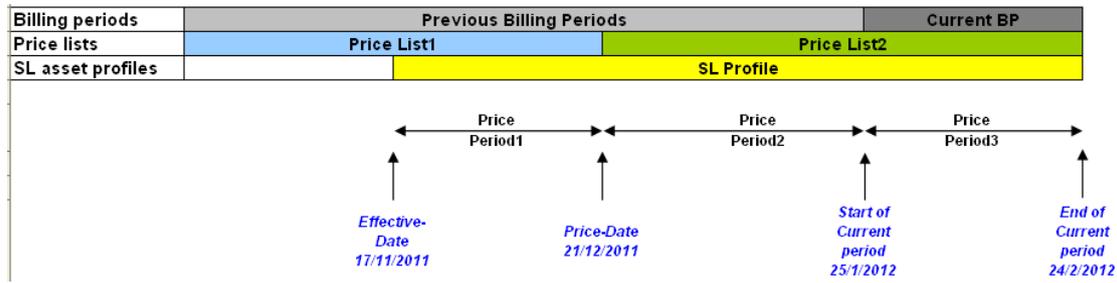
Rec No	Price Period (PP)	LampId	Effective-Date	LGB-Code	Change-Type	Profile	Price List	Billing Days	Billing Amounts
1	PP1	LampId1	17/11/2011	114	A	SL-Profile	PriceList1	34	+ve (Charge)
2	PP2+PP3	LampId1	21/12/2011	114	N	SL-Profile	PriceList2	65	+ve (Charge) [1]

[1] Details previous and current billing period charges have been consolidated

Example 4 – SL Remove in CURRENT billing period and NO price change
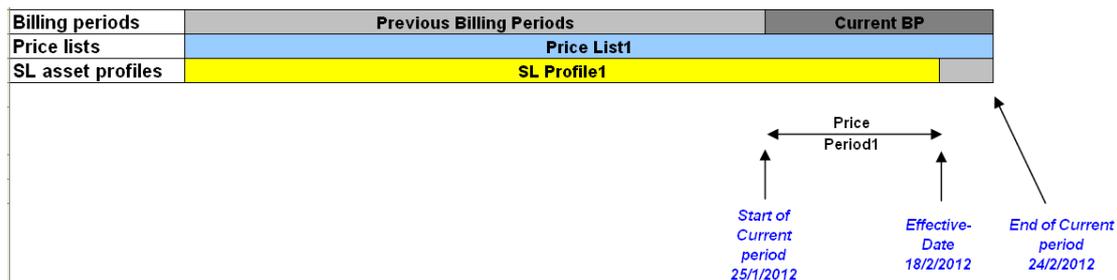
| Rec No	Price Period (PP)	LampId	Effective-Date	LGB-Code	Change-Type	Profile	Price List	Billing Days	Billing Amounts
1	PP1	LampId1	18/02/2012	114	R	Profile1	PriceList1	24	+ve (Charge)

Example 5 - SL Remove in PREVIOUS billing period and NO price change
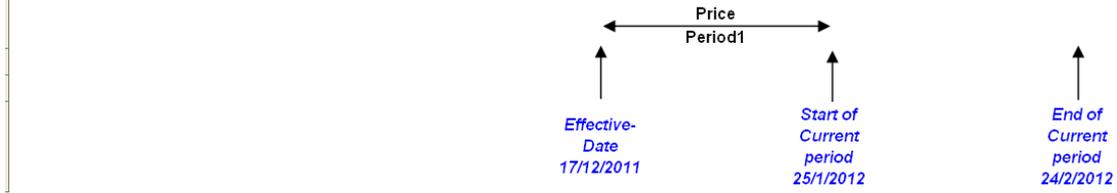
Rec No	Price Period (PP)	LampId	Effective-Date	LGB-Code	Change-Type	Profile	Price List	Billing Days	Billing Amounts
1	PP1	LampId1	17/12/2011	114	R	Profile1	PriceList1	-39	-ve (Refund)

Notes:

The billing days are negative for refunds.

Example 6 - SL Remove in previous billing period AND a price change
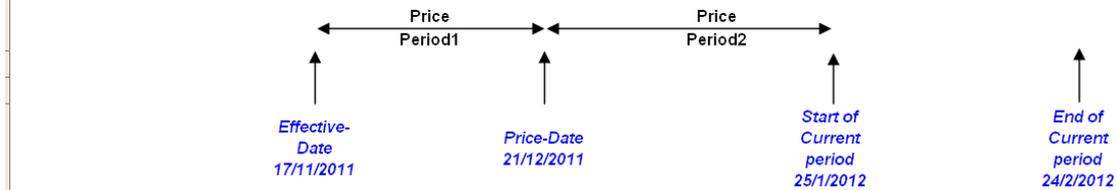
Rec No	Price Period (PP)	LampId	Effective-Date	LGB-Code	Change-Type	Profile	Price List	Billing Days	Billing Amounts
1	PP1	LampId1	17/11/2011	114	R	Profile1	PriceList1	-35	-ve (Refund)
2	PP2	LampId1	21/12/2011	114	N	Profile1	PriceList2	-34	-ve (Refund)

Notes:

The billing days are negative for refunds.

Example 7 - SL Change in previous billing period and NO price change
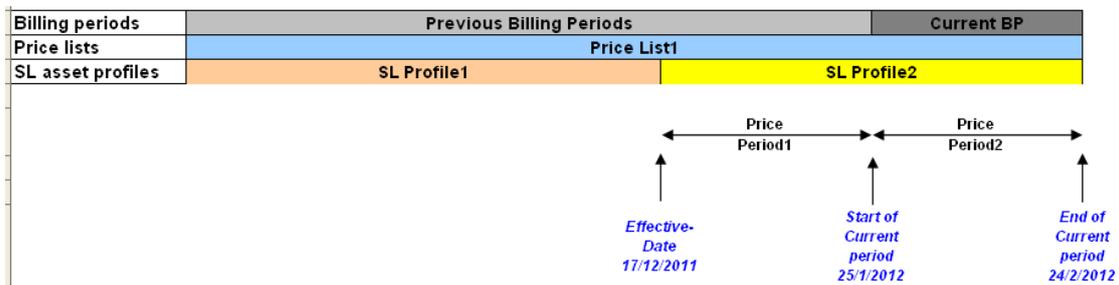
Rec No	Price Period (PP)	LampId	Effective-Date	LGB-Code	Change-Type	Profile	Price List	Billing Days	Billing Amounts
1	PP1	LampId1	17/12/2011	114	N	Profile1	PriceList1	-39	-ve (Refund)
2	PP1+PP2	LampId1	17/12/2011	114	C	Profile2	PriceList1	70	+ve (Charge) [1]

[1] Details previous and current billing period charges have been consolidated

Notes:

The billing days are negative for refunds.

There is an N Change-Type record followed by a C record with the same effective date.

Example 8 - SL Change in previous billing period AND a price change
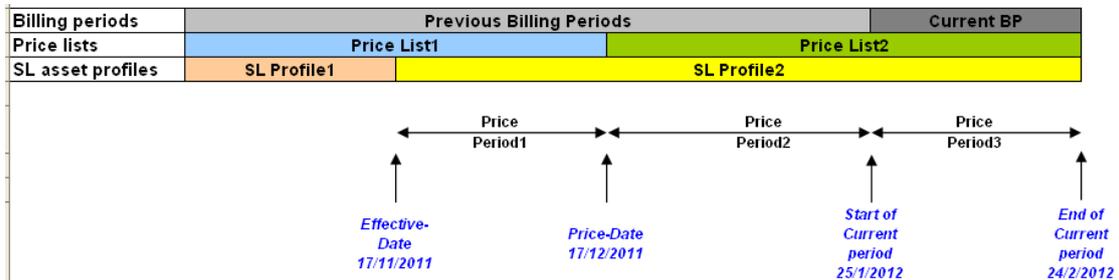
Rec No	Price Period (PP)	LampId	Effective-Date	LGB-Code	Change-Type	Profile	Price List	Billing Days	Billing Amounts
1	PP1	LampId1	17/11/2011	114	N	Profile1	PriceList1	-30	-ve (Refund)
2	PP2	LampId1	17/12/2011	114	N	Profile1	PriceList2	-38	-ve (Refund)
2	PP1	LampId1	17/11/2011	114	C	Profile2	PriceList1	30	+ve (Charge)
4	PP2+PP3	LampId1	17/12/2011	114	N	Profile2	PriceList2	69	+ve (Charge) [1]

[1] Details previous and current billing period charges have been consolidated

Notes:

The billing days are negative for refunds.

There is an N Change-Type record and a C record with the same effective date.

Example 9 - SL Change on the first day of the billing period
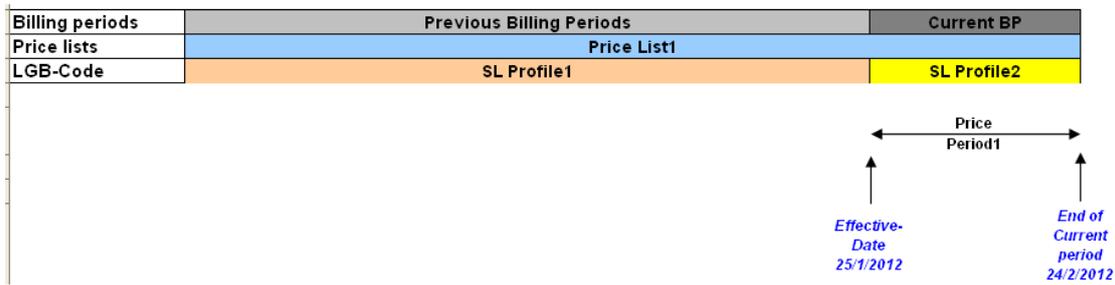
Rec No	Price Period (PP)	LampId	Effective-Date	LGB-Code	Change-Type	Profile	Price List	Billing Days	Billing Amounts
1	N/A	LampId1	25/01/2012	114	N	Profile1	PriceList1	0	0
2	PP1	LampId1	25/01/2012	114	C	Profile2	PriceList1	31	+ve (Charge)

Notes:

There is a "dummy" N Change-Type record with a zero billing days followed by a C record with the same effective date.

Example 10 - Change in LGB-Code
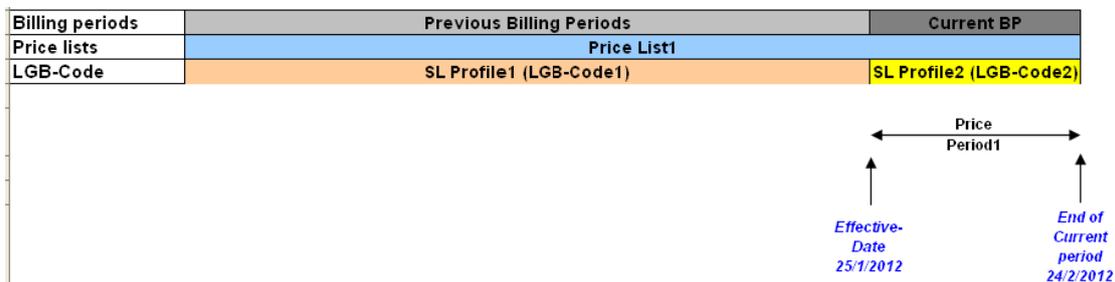
| Rec No	Price Period (PP)	LampId	Effective-Date	LGB-Code	Change-Type	Profile	Price List	Billing Days	Billing Amounts
1	N/A	LampId1	25/01/2012	114	N	Profile1	PriceList1	0	0
2	PP1	LampId1	25/01/2012	129	C	Profile2	PriceList1	31	+ve (Charge)

Notes:

There is a "dummy" N Change-Type record with a zero billing days followed by a C record with the same effective date.

Example 12 - SL No change

Rec No	Price Period (PP)	LampId	Effective-Date	LGB-Code	Change-Type	Profile	Price List	Billing Days	Billing Amounts
1	PP1	LampId1	25/01/2012	114	N	Profile1	PriceList1	31	+ve (Charge)