Customer Briefing Note 005

Block Tariffs

Edge Background

Edge is our flag-ship web-based software solution for retail water and waste services suppliers in the UK.

Edge has been designed and built from first principles to provide a complete "Business in a Box" for both established and new entrant Licensed Providers.

The Edge system allows seamless operations across the UK – in both the Scottish and English markets.

Edge runs on the Microsoft "Azure" cloud platform, and provides unrivalled flexibility, security and availability.

Deployment of Edge is quick and easy, whether you are a new start or the largest water company in the country.

Block Tariff Concepts

Block tariffs are employed in both Scottish and English markets for Water and Waste Volumetric charges.

The idea of a Block Tariff is that the charge rate will vary depending on the volume consumed over time.

The most common type of Block Tariff is the "Reducing Block Tariff", where the charge rate and hence cost reduces in blocks of consumption volume.

However, it is possible for a Block Tariff to be an "Increasing Block Tariff", where the charge rate and hence cost increases with increased consumption. This approach could be used as a method of demand control to penalise high consumption.

The concept is best described in the form of an example. Figure 1 provides an example of a Reducing Block Tariff:

Tariff	Lower Volume Threshold (m3)	Upper Volume Threshold (m3)	Charge Rate (£/m3)
Default	0.00	25.00	£2.1442
Default	25.00	100000.00	£0.8042
Default	100000.00	250000.00	£0.6879
Default	250000.00	1000000.00	£0.6627
Default	1000000.00	10000000.00	£0.4913

Figure 1 – Scottish Volumetric Water Reducing Block Tariff

In this example, all SPID consumption between 0.00m3 and 25m3 is charged at a rate of £2.1442 / m3. This is referred to as the first block.

In the second block, all consumption between 25m3 and 100,000m3, is charged at a rate of £0.8042.

This approach follows for blocks 3, 4 and 5. The blocks are shown pictorially in Figure 2.
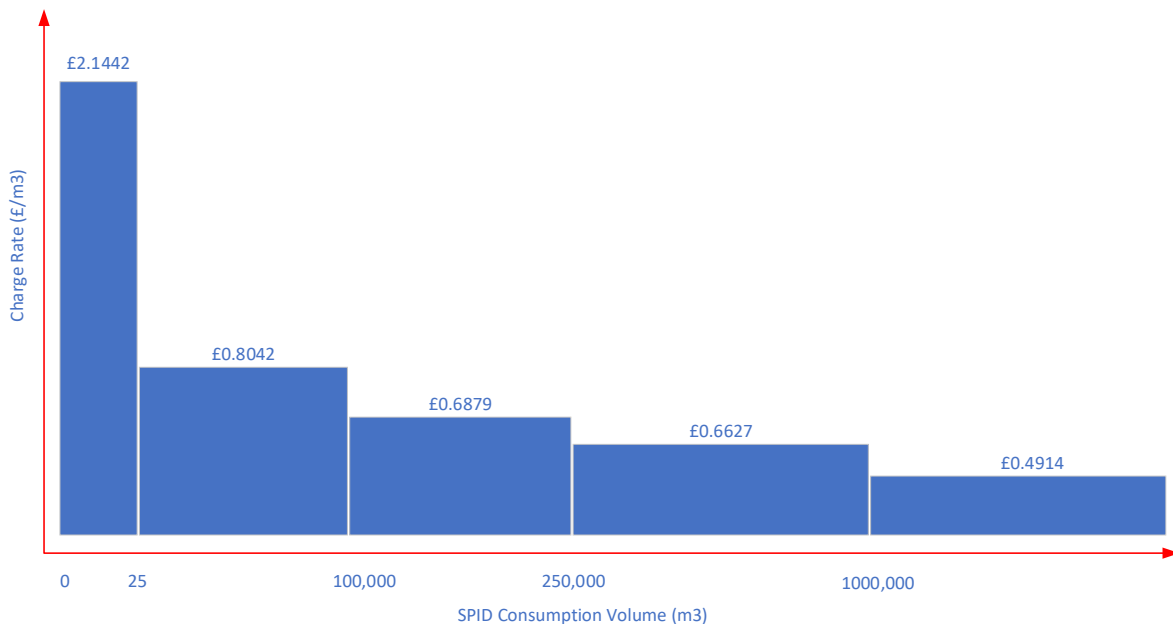

Figure 2 – Reducing Block Tariff

Note that these consumption rates are at a SPID level, NOT a meter level. Therefore, for SPIDs with more than one meter, the consumption for each meter is summed before the tariff rate is applied.

The other important point to note about Block Tariffs is that there is a starting date (dd/mm) for consumption. This is typically (but not always) the 1st April.

In Edge we call this the "Anniversary Date". On the Anniversary Date, the accumulated SPID consumption is set back to zero, and therefore the charge rate is returned to the first tariff block.

Edge Pricing of SPIDs with Block Tariffs

The Edge Pricing Module provides an algorithm to estimate the ADC for a SPID based on the latest available Meter Read and a Meter Read from about 365 days earlier. In other words, about one-year consumption. In this way, the Edge pricing module accounts for "seasonality", where for example, summer water consumption might be greater than winter water consumption, or vice versa.

Edge calculates the SPID "Annual Consumption" by multiplying the ADC by 365 (or 366 in a leap year)

The Annual Consumption is then applied to the SPID Block Tariff to estimate the annual Charge for the SPID consumption, for both Water and Waste.

It is probably easies to demonstrate the principle of Edge pricing with an example.

Here we will consider a SPID with a single meter, although SPIDs with multiple meters will use the same principle. The meter read history for our example SPID is as follows:

- Latest meter read, taken on 1st July 2018 is 1500m3
- Meter read taken on 1st February 2018 is 1400m3
- Meter read taken on 1st October 2017 is 1350m3
- Meter read taken on 1st August 2017 is 1300m3
- Meter read taken on 1st February 2017 is 1200 m3

The Edge pricing algorithm takes the latest read (1500m3) and the read closest to 365 days earlier, in this case 1st August 2017 (1300m3)

The Consumption is this 1500-1300 = 200m3 in 334 days.

The Average Daily Consumption (ADC) is therefore 250 / 334 = 0.5988 m3/day

The Estimated Annual Consumption is therefore 0. 5988 m3/day x 365 = 218.56m3

To calculate the cost of Water over the period of one year, Edge will apply the Block Tariff rates to the Water Consumption as follows:

- Block 1: 25m3 @ £2.1442/m3 = £53.60
- Block 2: (218.56m3 - 25m3) @ £0.8042/m3 = £155.66
- Block 3: 0m3 @ £0.6879/m3 = £0.00
- etc…

Thus, Total Charge = £53.60 + £155.66 + 0.00 + … = <u>£209.26</u>

Edge Billing of SPIDs with Block Tariffs

The Edge billing module is more complex than the Pricing Module because Edge calculates all invoice charges on a daily-basis. This is an important distinction.

The reason for the daily charge calculation is that Edge needs to be able to adjust bills based on changing parameters over time. See also the CBN003 on Volumetric Adjustments.

Edge maintains two related data items to allow the accurate billing of SPIDs with block tariffs.

These data items are:

- Anniversary Date
- Consumption since Anniversary Date

These data items are explained in more detail below:

Anniversary Date

The Anniversary Date is a starting date (dd/mm) for annual consumption.

Historically Edge has adopted the initial Registration Start Date (RSD) for the SPID to be the Anniversary Date. However, it is now possible to amend the Anniversary Date for all SPIDs to be a common date. This is typically (but not always) the 1st April.

On the Anniversary Date, the accumulated SPID consumption is set to zero, and therefore the charge rate is returned to the first tariff block.

Consumption Since Anniversary Date (CSAD)

The "Consumption Since Anniversary Date" (CSAD) is a count of accumulated consumption for each day since the Anniversary Date. For example, assume that the Anniversary Date for the SPID is 1st April and the ADC for the SPID is 0.5988 m3/day (note that the ADC for the SPID will change with the receipt of each meter reading)

- On Day 1 (2nd April) the CSAD = 0.5988 m3
- On Day 2 (3rd April) the CSAD = 0.5988 m3 + 0.5988 m3 = 1.1976 m3

- On Day 3 (4th April) the CSAD = = 0.5988 m3 + 0.5988 m3 + 0.5988 m3 = 1.7964 m3
- etc…

By maintaining a record of "Anniversary Date" and "Consumption Since Anniversary Date" (CSAD) for the SPID. Edge establishes if the relevant average daily consumption (ADC) should be billed in Tariff Block 1, or Block 2, or Block 3 etc. Edge then calculates the Charges for each day of a bill using the correct block tariff rate.

When the "Consumption Since Anniversary Date" (CSAD) crosses a tariff block threshold, Edge calculates the fraction of the ADC that is to be charged at the higher tariff rate and the fraction of the ADC that is to be charged at the lower tariff rate. It is therefore normal to see two separate charging lines on the bill when the consumption passes through a tariff block threshold.

The Edge bill them simply sums all daily charges for each day of the bill. It does this for all relevant services, such as Water, Waste, Drainage etc.

Related Customer Briefing Notes (CBN's)

You may also be interested in these related CBN's

- CBN001: "Edge Overview"
- CBN002: "ADC Billing"
- CBN003: "Volumetric Adjustment"
- CBN004: "Metered Billing"
- CBN005: "Block Tariffs"
- CBN006: "Consolidated Billing"
- CBN007: "Published Tariffs"
- CBN008: "Manual and Automated Billing"
- CBN009: "Bill Output Formats"
- CBN010: "Market Transactions and Data Items"
- CBN011: "Integrated Transaction Management"
- CBN012: "Bitemporal Updates"
- CBN013: "Market Data Set"
- CBN014: "Market Pricing"
- CBN015: "SPID Transfers"
- CBN016: "CRM Module"
- CBN017: "Data Quality"
- CBN018: "Meter Reading Management"
- CBN019: "Sub Meters and Complex Metering"
- CBN020: "Meter Exchange Management"
- CBN021: "Trade Effluent"

Further Information

If you require further information on any aspect of the Edge solution, please contact us at:

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