

## **EMA Guide to .... Electricity pass through charges**

This guide has been developed to assist in gaining an understanding of the origin and function of various pass through charges associated with your electricity supply and billing process. Whilst many pass through charges are structured directly around total kilowatt hour consumption, others have some degree of flexibility and therefore lend themselves to a management process which can help to reduce their impact

### **Distribution and Transmission Losses**

As energy travels from the point of production to the end user, some of it is 'lost' on the system. These line losses are published values and may be identified on your bill as simply as a LLF (line loss factor) built in to your unit rate or you may see consumption at GSP (grid supply point) and consumption at MSP (meter supply point). The difference is your line loss and the energy you buy is the higher value at GSP, not the metered volume.

**Mitigation** – The line losses are applied to every KWh consumed, therefore there is no ability to reduce their impact outside of reducing your consumption

### **RO (Renewable Obligation)**

Government levy imposed on each electricity supplier supplying electricity in England and Wales. Places mandatory requirement on licensed electricity suppliers to source a specified and annually increasing proportion of electricity from eligible renewable sources or to pay a penalty

Initially intended as an incentive to producers, it is now expected for this charge to be passed onto the end-customer. The scheme is regulated by Ofgem who issue Renewables Obligation Certificates (ROCs) to renewable electricity generators for every megawatt hour (MWh) of eligible renewable electricity generated

Generators sell their ROCs to suppliers or traders which allows them to receive a premium in addition to the wholesale electricity price. Suppliers present ROCs to Ofgem to demonstrate their compliance with the obligation or pay a penalty known as the buy-out price.

The RO charge is calculated annually, from 1 April to 31 March from two elements:

- **Obligation level** – the amount of expected renewable generation as a proportion of overall electricity generation within the compliance period, eg 0.158 ROCs per MWh for 1 April 2012 to 30 March 2013.
- **Buy-out price** - the buy-out price is set by Ofgem and is index linked to the Retail Price Index. The buy-out price for 1 April 2012 to 30 March 2013 is £40.69 per ROC. The charge is calculated as obligation level x buy-out price – eg in the above example, 0.158 x £40.69, so the Renewables Obligation charge for 1 April 2012 to 30 March 2013 is 0.643 pence per kWh or £6.43 per MWh.

**Mitigation** – The RO is applied to every KWh consumed, therefore there is no ability to reduce its impact outside of reducing your consumption

### **FiT (Feed in Tariff)**

Introduced by Government in April 2010 with the aim of incentivising businesses and households to invest in small scale renewables and low carbon electricity generation in return for guaranteed payments

All licensed electricity suppliers are required to make payments into Ofgem's levelisation fund, based on their market share of the Great Britain electricity supply market and any FIT payments made to accredited installations under the FIT scheme

The fund is then redistributed to FIT licensees for onward payment to their FIT installations. This process currently occurs on a quarterly basis

**Mitigation** – The FIT is applied to every KWh consumed, therefore there is no ability to reduce its impact outside of reducing your consumption

### **CCL (Climate Change Levy)**

Government imposed levy on business energy usage, to encourage firms to become more carbon aware and develop energy management plans and practices.

**Mitigation** – The CCL is applied to every KWh consumed, therefore there is no ability to reduce its impact outside of reducing your consumption

### **AAHEDC (Hydro Benefit)**

The Assistance for Areas with High Electricity Distribution Costs scheme reduces the distribution costs to consumers in Northern Scotland. National Grid recovers an Assistance Amount from all authorised suppliers, which is passed to Scottish Hydro Electric Power Distribution Ltd.

**Mitigation** – The AAHEDC is applied to every KWh consumed, therefore there is no ability to reduce its impact outside of reducing your consumption

### **TNUoS (Transmission Network Use of System Charges)**

National Grid's charge to cover the cost of installing, operating and maintaining the national transmission system. Customers are charged based on their energy consumption during the TRIAD periods.

TRIAD - three settlement periods (half-hours) of highest transmission system demand in each winter season (November to February) that have the highest demand peaks on the electricity network as notified by National Grid. The three national kW peaks must be separated from each other by at least 10 days, so an extreme long cold snap could only dictate one of the three Triad dates.

- Historically occurred between 17:00 and 18:00.
- Charges are based on the average of the half-hourly kW demand being recorded at the time of three national peaks
- £/kW Tariff set annually – varies depending which Transmission Zone the site is in

## National Grid 2012-13 Final Demand TNUoS Tariffs.

| Demand   |                   |                        |
|----------|-------------------|------------------------|
| Zone No. | Zone Name.        | HH Zonal Tariff (£/kW) |
| 1        | Northern Scotland | 10.741418              |
| 2        | Southern Scotland | 16.001744              |
| 3        | Northern          | 19.662769              |
| 4        | North West        | 22.838742              |
| 5        | Yorkshire         | 23.180244              |
| 6        | N Wales & Mersey  | 23.639502              |
| 7        | East Midlands     | 25.451532              |
| 8        | Midlands          | 27.358246              |
| 9        | Eastern           | 25.952047              |
| 10       | South Wales       | 25.257265              |
| 11       | South East        | 28.248124              |
| 12       | London            | 31.174616              |
| 13       | Southern          | 30.613447              |
| 14       | South Western     | 31.062748              |

**Mitigation** – Reduce consumption to an absolute minimum during expected periods of high demand. Your supplier will probably offer a free TRIAD alert service. Ensure this service is made available to all with site management responsibilities. You should expect 20 to 25 alerts per TRIAD season

### DUoS (Distribution Use of System Charges)

A number of published unit, fixed and availability charges made by each Distribution Company for delivering electricity from the Grid Supply Point to the customer's premises.

**1. Fixed / standing charge**

Standing charge per day or month depending on the distribution company

**2. Availability Charge (Supply Capacity KVa)**

Charge for the power capacity held available for a supply point. Charged in £/kVa/day whether you use it or not.

**Mitigation** – Supply point capacity requirements should be reviewed on an annual basis as site alterations/efficiency measures may reduce your requirement for retained capacity. Under your connection agreement you can generally reduce after a 12 month period, but it is important that you do not give up capacity you may need again at a later date, Surrendered capacity may be allocated to others and a request at a later date for an increase may require that you contribute towards a network upgrade.

A low power factor will also create an excessive and unnecessary draw on KVa. Correction of the PF may also create an opportunity to reduce your retained KVa availability.

**3. Excess Availability Charge**

An excess kVa availability capacity charge when the agreed monthly demand is breached. There may also be other liability risks associated with breach of agreed supply capacity. These will be outlined in your supply agreement.

**4. Unit Rates (time of use surcharge)**

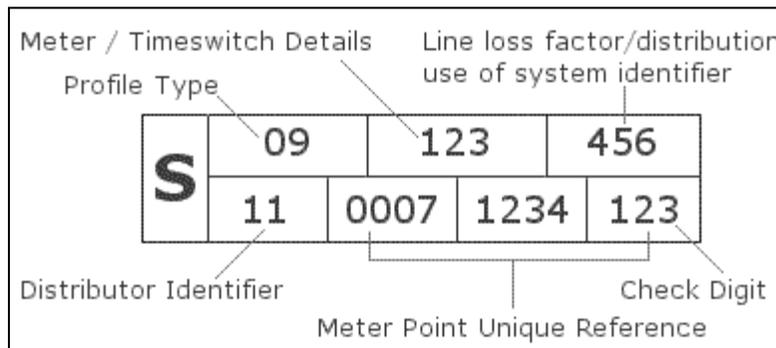
In a move to encourage industrial and business consumers to reduce their electrical load at peak demand times, OFGEM approved a tariff based surcharge to penalise those consumers who use power at the ‘wrong’ time of the day. Each meter point (dependant on DNO region, LLF and supply voltage) now has a specific **RED**, **AMBER** and **GREEN** timed based tariff band effective every weekday throughout the year. For every KWh consumed within the Red band, you may see your KWh overall cost more than double. Examples:-

| DNO name                     | LLF | Red Unit charge (p/kWh) | Amber Unit charge (p/kWh) | Green Unit charge (p/kWh) | Clock time zone            | Red zone time band  | Amber zone time band  | Green zone time band |
|------------------------------|-----|-------------------------|---------------------------|---------------------------|----------------------------|---|---|----------------------|
| Western Power - South West   | 510 | 15.398                  | 0.063                     | 0.068                     | UK Clock time only applies | 17:00 to 19:00, Monday to Friday, including Bank Holidays | 07:30 to 17:00 and 19:00 to 21:30. Monday to Friday, incl Bank Holidays and between 16:30 - 19:30 Sat and Sun | All other times.     |
| Scottish Power - Manweb      | 513 | 10.531                  | 0.592                     | 0.117                     | UK Clock time only applies | 16:30 to 19:30, Monday to Friday, including Bank Holidays | 08:00 to 16:30 and 19:30 to 22:30. Monday to Friday, including Bank Holidays and 16:00 - 20:00 Sat and Sun    | All other times.     |
| Scottish & Southern Electric | 453 | 9.729                   | 1.078                     | 0.061                     | UK Clock time only applies | 16:30 to 19:00, Monday to Friday, including Bank Holidays | 09:00 to 16:30 and 19:00 to 20:30. Monday to Friday, including Bank Holidays                                  | All other times.     |
| Electricity North West       | 802 | 9.693                   | 0.612                     | 0.094                     | UK Clock time only applies | 16:30 to 18:30, Monday to Friday, including Bank Holidays | 09:00 to 16:30 and 18:30 to 20:30. Monday to Friday, including Bank Holidays and 16:30 - 18:30 Sat and Sun    | All other times.     |
| UKPN - South East            | 550 | 8.858                   | 0.295                     | 0.055                     | UK Clock time only applies | 16:00 to 19:00, Monday to Friday, including Bank Holidays | 07:00 to 16:00 and 19:00 to 23:00. Monday to Friday, including Bank Holidays.                                 | All other times.     |

Note – the published tariffs are a surcharge and as such are in addition to all other commodity costs, supply and other pass through charges.

Tariffs are published via the appropriate DNO website as ‘use of system charging statements’

Your line loss factor can be identified from your Mpan number on your invoice:



**Mitigation** – Reduce consumption to an absolute minimum during Red Band surcharge period

## 5. **Reactive Power Charge (KVar)**

Covers the extra power drawn from the network as reactive power (electricity that is used but not transformed and will eventually return to the distribution network) Apart from its need to energise magnetic fields associated with motors and transformers, reactive power is useless and unwanted. You are permitted an element for free (for energising duties) but you incur KVar charges above that. It also uses up supply capacity that you are paying for.

**Mitigation** – Power factor is a measure of efficiency between active power (KW's) and reactive power (KVar). As discussed you are permitted an element of KVar free of charge and at this level will equate to a PF of 0.95. Anything above is acceptable and will not incur charges on a half hourly basis, where as anything below should be investigated, including the installation of power factor correction equipment if significantly adrift.

### **BSUoS (Balancing Services Use of System Charges)**

Recovers the cost of balancing the National Grid transmission system each half hour (ensuring that supply and demand match). Customer's charge is based on their proportion of BM Unit Metered Volume for each Settlement Period relative to the total BM Unit Metered Volume for each Settlement Period, adjusted for transmission losses.

### **Meter reading, Data Collector (DC), Data Agregator (DA)**

As discussed in the EMA Guide to .... Managing your electricity supply charges and supply agreement, these services can be contracted directly between the end user and the service provider. Where no direct agreement is in place, your supplier will appoint their default provider and monthly service charges will appear on your billing.

**Mitigation** – Negotiate you own agreement directly with a service provider.

All the above should now be identified independently on half hourly metered supply billing. However those smaller supplies at non half hourly metering may not have this level of visibility available.

If you have further questions, please post an enquiry on the EMA members forum and we will endeavour to provide a response promptly.