

Market Opening Programme

Supplier Communications Resulting from DUoS Billing & Invoicing



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1. Purpose of the Document

The purpose of this document is to provide comprehensive information on how DUoS charges will be determined and communicated to Market Participants by ESB Networks. These communications will include market messages sent to Supplier's to communicate meter reads and the *MPRN Level Invoice Item Detail* that will support the regular supplier invoicing of DUoS energy charges.

The document will also walk through a set of business scenarios to explain the relationship between messages sent and the resulting data shown on the supporting information for the invoice.

Billing, invoicing including aggregated invoicing and communication to Market Participants in respect of Unmetered MPRNs, Autoproducers and CHP Producers are not addressed in this document. Additionally, PSO and Transaction charging are not included in this document. These will be added at a later stage if deemed necessary

This documentation should be read in conjunction with:

- **Proposals for New DUoS Billing System** – *Approved by CER in February 2004*
- **DUoS, Transaction & PSO Payment Process** – *MOIP April 2004*
- **Distribution Use of System Agreement – Framework Agreement** – *Approved by CER on 1st August 2002*
- **Approved Schedule of Distribution Use of System Charges 2004** – *(CER 03/224 – Sept 03)*
- **Meter Configuration Code Guidance Notes** – *MOIP June 2004*

2. Summary

The objective for this document is set out in Section 1 which also includes references to relevant documentation to be considered in conjunction with this document.

Section 3 provides a description of how Networks will process scheduled meter reading data and bill the appropriate Supplier for a DUoS charge.

Section 4 describes how Networks will process non-scheduled meter reading data and bill the appropriate Supplier for a DUoS charge.

Section 5 introduces some key billing concepts and principles.

Section 6 describes a range of typical business scenarios in terms of their portrayal on this backing documentation.

Section 7 provides detailed descriptions of the information to be provided at field level in *MPRN Level Invoice Item Detail* documentation which will support the validation of DUoS charges that is included on the twice a month invoicing of suppliers.

3. Scheduled Billing & Invoicing Processes

This section will describe how Networks will process scheduled NQH and QH reads at MPRN level through to DUoS billing, invoicing and aggregated invoicing to suppliers including sending of messages.

3.1 Scheduled NQH Data Processing to Invoicing

NQH metering can be installed in sites that are DUoS Group DG1, DG2, DG5, or DG6.

Figure 3.1 below describes the approach to processing NQH data from a data collection tool through to sending messages and producing an invoice. Each box in the diagram is described below.

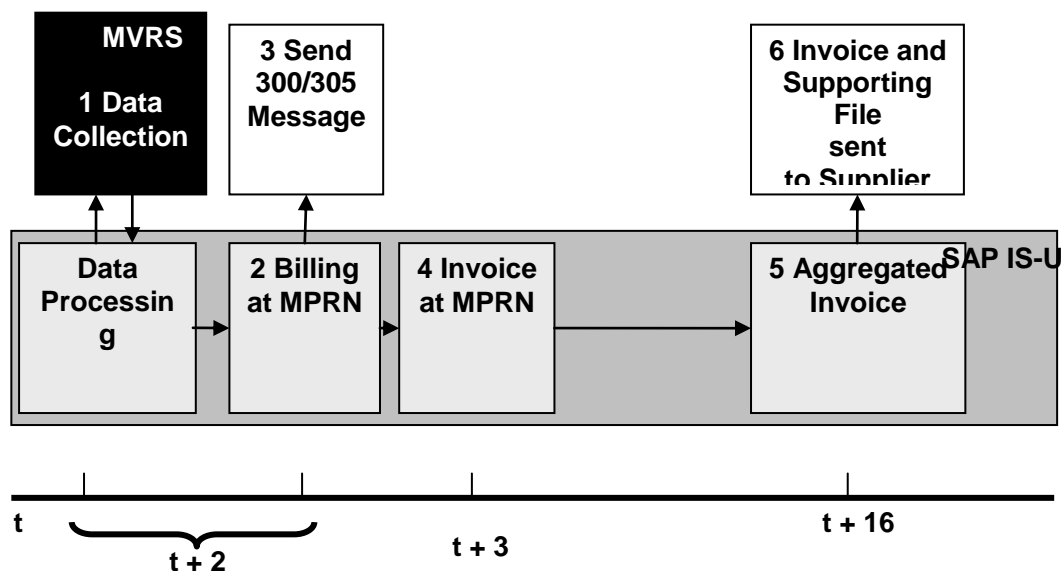


Figure 3.1: NQH data processing to invoicing

1 Data Collection

Figure 3.2 below depicts the meter reading / billing cycle for NQH meter points.

Meter reading orders in respect of NQH meter points are generated in SAP IS-U in accordance with the meter reading schedule. This generation occurs on the evening of the third working day before the scheduled read date with specific route data downloaded to the meter reading management system (MV-RS) to facilitate the collection of readings by meter readers using hand-held terminals. Printing of meter reading sheets is also arranged to cater for manual reading of a small number of exceptions where hand held terminal reading is not feasible.

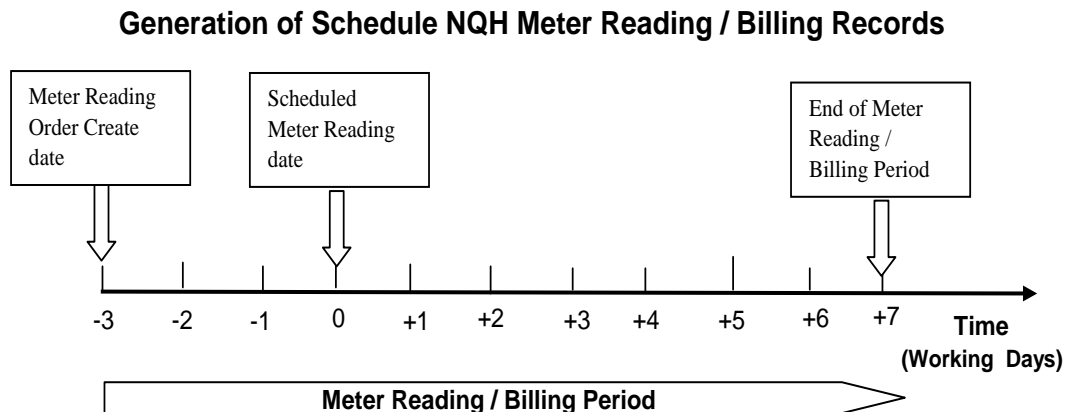


Figure 3.2: The Meter Reading Cycle.

Following reading of meters, results are uploaded via the meter reading management system to SAP IS-U. Every meter reading result is validated on the day received in accordance with determined rules. Implausible readings are investigated. Estimates are provided where no valid readings are available. Estimation will automatically occur on Day +7 for any remaining meter points which do not have an actual plausible meter reading. This estimation will be effected for the scheduled meter reading date.

2 Billing at MPRN

Plausible readings are made available on a daily basis to the billing process. For each meter register that accumulates consumption for billing purposes, the reading advance (i.e. the difference between the current and the previous valid reading with the relevant multiplier applied) is converted to a kWh or kVarh consumption value as appropriate.

Billing is a nightly batch process in SAP IS-U and includes:

- creation of billing documents for invoicing
- generation of market messages for all meter readings
- Usage Factor update

The process for creation of billing documents for invoicing includes:

- determination of billing period
- determination and conversion of quantities e.g. kW to kVa
- determination of change dates and proration
- determination of rates and prices
- valuation of quantities with prices

3 Send Market Message

As a result of the meter point being billed a 300 or 305 message (estimated where no actual read obtained) is sent to the Supplier registered at that meter point.

4 Invoice at MPRN

Invoicing is a nightly batch process in SAP IS-U, which supports determination and charging of VAT and generates posting documents for accounts receivable from the billing documents created in the billing process. As with the billing process, the invoicing process is also effected at individual MPRN level. The process also includes the updating of a special table that is subsequently used for the generation of the aggregated invoicing to suppliers.

The nightly invoicing run applies to all billing documents that were produced in the previous night's billing process. This enables any outsourcing or queries arising in the billing process to be validated or rectified in the following day, thereby, preserving the integrity of the overall billing and invoicing process. No 300 or 305 market messages will issue for a meter point until out-sorted queries have been cleared and billing effected.

5 Aggregated Invoice

Aggregated invoicing to suppliers is effected on a twice a month basis to produce supplier invoices – mid month and at month end. As described in the previous paragraphs, the nightly billing and invoicing processes are effected at MPRN level and result in the updating of a special table that provides the basis for the twice monthly cycle of supplier invoicing. The mid month aggregated invoicing will include the first tranche of all NQH MPRNs that were billed and invoiced since the last month end aggregated invoicing. The month end aggregated invoicing includes the second tranche of all NQH MPRNs that were scheduled to be billed and invoiced since the last scheduled aggregated invoicing processing.

The following documentation is generated for transmission to suppliers via Secure File Transfer Service (SFTS) or Encrypted Email (EE) at each instance of aggregated invoicing:

- Supplier invoice
- Credit Note (if applicable)
- DUoS Group summary
- *MPRN level invoice item detail*
- Account statement
- Dispute summary
- Dispute detail
- Remittance advice

The *DUoS, Transaction & PSO Payment Process* document provides descriptions of each of these documents and includes sample documentation.

6 Send Backing Information behind invoice

This billing / invoicing / aggregated invoicing processing results in the generation of MPRN invoice line items on the *MPRN Level Invoice Item Detail* in respect of:

- Scheduled MPRN billing and invoicing of all scheduled meter readings including estimates where no actual reading available
- Final billing of any events necessitating termination of 'contracts'

- Billing / invoicing reversal including rebilling
- Manual billing of MPRNs for more or less than reflected through meter readings e.g. consumption adjustments.

The *MPRN Level Invoice Item Detail* is included as part of the documentation provided to supplier at step 5 via SFTS / EE.

3.2 Scheduled QH Data Processing to Invoicing

QH metering can be installed in sites that are DUoS Group DG5, DG6, DG7, DG8, DG9, or DG10.

Figure 3.3 below describes the approach to processing QH data from the MV90 system through to sending messages and producing an invoice. Each box in the diagram is described below. A 30-day calendar month is assumed with (t) denoting the first day of the month.

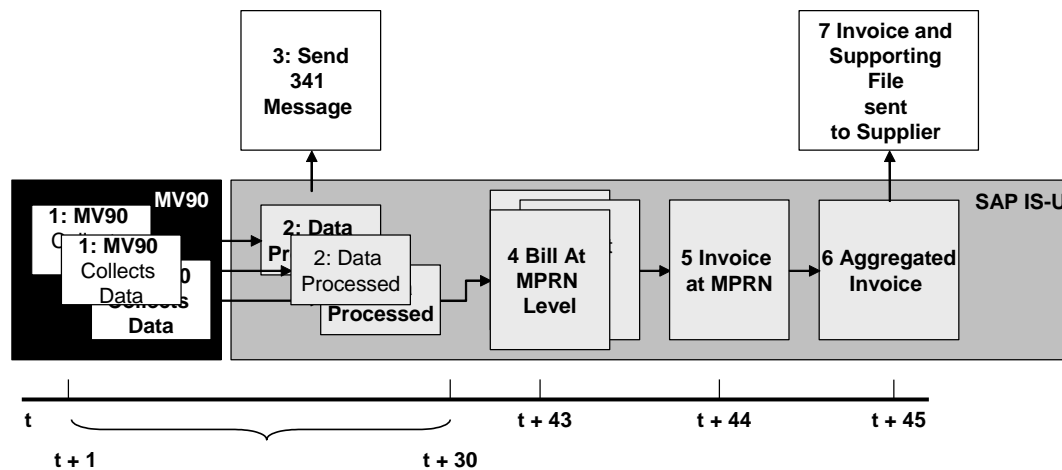


Figure 3.3: QH data processing to invoicing.

1 MV90 Collects Data

Designated sites are polled by MV90 on a nightly basis and interval data is retrieved from Quarter Hour meters.

MV 90 validates collected data against predetermined criteria. Where scheduled polling results in no data or invalid data, each affected MPRN is investigated. The interval data for any day in respect of all QH designated sites must be made available to SAP IS-U within 10 working days under current agreements. These current arrangements will continue to exist for go live.

2: Data Processing

SAP will exercise its own validation processes of the transmitted MV 90 data. Data is processed and readings are passed to the appropriate market participants via the 341 message. These messages are sent on a daily basis.

3: Send 341 message

Quarter Hourly data is sent to market participants following data processing. The sending of data to market participants does not depend on the SAP IS-U billing engine.

4: Billing at MPRN

QH data is DUoS billed at MPRN level. This billing process will happen once a month. Under current provisions, QH billing for any calendar month will be targeted for completion on the night of the 10th working day of the ensuing month. These current provisions will continue to exist for go live.

The billing engine will create billing documents for invoicing. The process for creation of billing documents for invoicing includes:

- determination of billing period
- determination and conversion of quantities e.g. kW to kVa
- determination of change dates and proration
- determination of rates and prices
- valuation of quantities with prices
- creation of billing documents for invoicing

5 Invoice at MPRN

Although invoicing is a nightly batch process in SAP IS-U, QH data will be invoiced once a month (one day after the billing process). This enables any outsourcing or queries arising in the billing process to be validated or rectified in the following day.

As with the NQH MPRN invoicing process, QH invoice processing will include VAT determination and application including generation of posting documents for accounts receivable from the billing documents created in the billing process. The process also includes the updating of a special table that is subsequently used for the generation of the aggregated invoicing to suppliers.

6 Aggregated Supplier Invoice

The aggregated invoicing run will be effected as soon as it is feasible following completion of the invoicing run at step 5. The mid month aggregated invoicing described in the NQH process will include all QH MPRNs that were scheduled to be billed and invoiced in respect of the previous calendar month as well as the first tranche of all NQH MPRNs that were billed and invoiced since the last month end aggregated invoicing.

QH DUoS charges are included in the same aggregated supplier invoice as the NQH data charges.

The resulting documentation from the aggregated invoicing processing is forwarded to suppliers via SFTS / EE at each instance of aggregated invoicing

7 Send Backing Information behind invoice

The detail supporting QH DUoS charges are included in the backing information behind the invoice and is included in the documentation that is forwarded to suppliers via SFTS / EE.

4. Business Events in the Networks Solution

This section will describe how the following key business events will be communicated and, where appropriate, billed in the Networks solution.

- Change of Supplier (CoS)
- Change of Legal Entity (CoLE)
- Change of DUoS Group (CoDG)
- Change of MIC
- 'Present Less than Previous'
- Customer Own Read (CoR)
- Special Reads
- Readings Associated with Meter Works
- Reversal of NQH Reads
- QH Replacement Reads
- Manual billing

4.1 Change of Supplier (CoS)

A Change of Supplier will be effected through application of the following rules,

- A CoS will result in the termination of one 'contract' and the creation of a new 'contract'.
- Surcharge violation will be evaluated when the existing 'contract' is terminated for the old supplier.
- Surcharge violation will also be evaluated at the end of the next and subsequent scheduled billing period for the new supplier.
- Processes that result in a 'contract' termination (such as Change of Supplier) will always result in a usage factor update irrespective of the meter reading type, actual or estimate.

The CoS process is operated following receipt of Market Message 010 from a supplier. Once the change has been confirmed both the 'old' and 'new' suppliers will receive Market Message 105L and 105 respectively, to confirm the CoS and to provide the effective date.

For a QH metered MPRN, Market Message 331 issues to the 'new' supplier confirming the meter details.

A billing document is generated in SAP IS-U at the next scheduled billing run following completion of the CoS process and covers the final billing of the 'old' supplier from date of last scheduled billing (or other non-scheduled billing if applicable) plus one to the effective date for the CoS process.

For an NQH metered MPRN, Market Message 310 issues to the 'old' supplier confirming closing reading. Market Message 320 issues to 'new' supplier confirming opening reading.

Invoicing will take place on the following night's scheduled invoicing run. This invoicing will be included in the next scheduled aggregated invoicing run.

The initial billing of the 'new' supplier will take place at the next scheduled billing for the MPRN. This will cover the period from the effective date (plus one) for the CoS to the date of the next scheduled billing (i.e. billing date to). The resulting MPRN billing and invoicing documents will be included in the next scheduled aggregated invoicing run.

Standing including capacity charges are prorated in accordance with the agreed market rule (see section 5.3). Surcharge 'violation' evaluations will be effected for both the final billing period of the 'old' supplier and the initial scheduled billing period for the 'new' supplier.

A Change of Supplier scenario is described in section 6.4 of this document.

4.2 Change of Legal Entity (CoLE)

A Change of Legal Entity will be effected through application of the following agreed market rules,

- For NQH DG1, DG2 and DG5 (<30kVa) the CoLE is effected for the required date (with a validated reading or with a system generated estimate) providing that it doesn't pre-date the date of the last scheduled or non-scheduled DUoS billing for the given MPRN. Should the required date be on or pre-date the last DUoS billing date, the CoLE will be effected for the message received date to a system-generated estimate. Additionally, should no required date be provided, then the CoLE will take effect for the message received date to a system-generated estimate.
- For DG5 (>=30kVa), DG6, DG7, DG8, DG9 and DG10, the effective date will be the required date. If no reading is provided for NQH non-MD meter points or where a provided reading fails validation, then a system-generated estimate reading will be used. For NQH MD meter points the CoLE will be effected for a reading obtained in response to a special reading request or a previous actual scheduled read if a subsequent read has not been obtained. In the case of QH sites, the CoLE will be effected for the required date. Should no required date be provided, the CoLE will be effected on the date that the DSO receives the message
- A CoLE will result in the termination of one 'contract' and the creation of a new 'contract'.
- Surcharge violation will be evaluated when the existing 'contract' is terminated for the old customer and again at the end of the scheduled billing period for the new end customer.
- Processes that result in a 'contract' termination (such as Change of Legal Entity) will always result in a usage factor update irrespective of the meter reading type, actual or estimate.

The CoLE process is operated following receipt of Market Message 016 from a supplier.

A billing document is generated in SAP IS-U at the next scheduled billing run following completion of the CoLE process and covers the final billing of the 'old' legal entity from date of last scheduled billing (or other non-scheduled billing if applicable) plus one to the effective date for the CoLE process. Invoicing will take place on the following night's

scheduled invoicing run. This invoicing will be included in the next scheduled aggregated invoicing run.

Market Message 300 issues to supplier confirming readings for the CoLE process for the 'old' legal entity. This reading also serves as the opening reading for the 'new' legal entity.

The initial billing of the 'new' legal entity will take place at the next scheduled billing for the MPRN. This will cover the period from the effective date (plus one) for the CoLE to the date of the next scheduled billing (i.e. billing date to). The resulting MPRN billing and invoicing documents will be included in the next scheduled aggregated invoicing run.

Standing including capacity charges are prorated in accordance with the agreed market rule. Surcharge 'violation' evaluations will be effected for both the final billing period of the 'old' legal entity and the initial scheduled billing period for the 'new' legal entity.

A Change of Legal Entity scenario is described in section 6.5 of this document.

4.3 Change of DUoS Group

QH & NQH (>= 30kVa):

A change of DUoS Group for QH /NQH customers in the grouping DG5 (>=30kVa), DG5A, DG6, DG6A, DG7, DG7A, DG8, DG8A, DG9, DG9A and DG10 will require a new 'contract' for the allocation of the new DUoS Group with termination of the old 'contract' for the old DUoS Group. The Change of DUoS Group will be effective from the start date of the new 'contract' under agreed market rules. Market message 301 will be automatically triggered to communicate the change of DUoS Group to the registered supplier.

Where a registered customer is moving from NQH (<30kVa) to QH or NQH (>=30kVa), the change of DUoS Group will also be effective from the start date of the new 'contract'. Market message 301 will also issue to the registered supplier to communicate the change of meter point characteristics which includes change of DUoS Group.

Where a MCC change also occurs in conjunction with a DUoS Group change (>=30kVa), Market Message 332 is used to communicate the changed meter details including readings for a NQH meter point and MM 341 is used for a QH meter point.

A billing document is generated in SAP IS-U at the next scheduled billing run following the completion of the Change of DUoS Group process and covers the final billing of the 'old' DUoS Group charges from date (plus one) of last scheduled billing (or other non-scheduled billing if applicable) to the effective date for the Change of DUoS Group process. Invoicing will take place on the following night's scheduled invoicing run.

The initial billing of the 'new' DUoS Group charges will take place at the next scheduled billing for the MPRN. This will cover the period from the effective date (plus one) for the Change of DUoS Group to the date of the next scheduled billing (i.e. billing date to). The resulting MPRN billing and invoicing documents will be included in the next scheduled aggregated invoicing run.

Standing including capacity charges are prorated in accordance with the agreed market rules. Surcharge 'violation' evaluations will be effected for both the final billing period

applicable for the 'old' DUoS Group and the initial scheduled billing of the 'new' DUoS Group charges.

NQH DG1, DG2 & DG5 (< 30kVa):

It should be noted that a change of DUoS Group for DG1, DG2 and DG5 (<30kVa) will be effective from the 1st day of the current billing period for changes within this grouping or where a non-scheduled billing event has occurred since the last scheduled billing, the change of DUoS Group will be effective from the effective date plus one of this event. DUoS Group changes within this grouping are permitted without a new connection agreement and include no 'contract' termination. There is no non-scheduled billing involved. Market message 114 will be issued to the registered supplier for the relevant MPRN to communicate the changes in customer details.

Charging in respect of the new allocated DUoS Group will apply from the 1st day of the current billing period and will be included in the next scheduled billing for the MPRN involved. *The MPRN Level Invoice Item Detail* supporting the supplier invoice for this MPRN will, therefore, reflect the new charging regime for standing and energy consumption for the total billing period where effected within the currency of this period.

Change of DUoS Group scenarios are described in section 6.6 of this document.

4.4 Change of MIC

Changes of MIC which are requested in conjunction with a change of 'contract' associated with CoDG ($\geq 30\text{kVa}$) will be effective from the start date of the new 'contract'. Please refer to Section 4.3 (CoDG) for detailed treatment of this event in the billing / invoicing and aggregated invoicing processes.

However, a change of MIC requested on its own for an existing customer will be effected for DUoS billing from the 1st day of the next billing period, subject to a new connection agreement being signed where necessary. This means that no change of 'contract' is involved. This will apply to both QH and NQH customers and will enable surcharge violations to be effected for the full scheduled billing period. Market Message 301 issues to the registered supplier to communicate the change of MIC of the concerned MPRN.

A Change of MIC scenario is described in section 6.7 of this document.

4.5 'Present Less than Previous'

The term "present less than previous" describes a situation where an actual read is less than a previously used estimate. The system provides for the automatic re-estimation of previous over-estimates. Therefore, the previously used estimate will be reversed and a new estimate provided for that date. The new estimate will be based on the present actual read that is being recorded. This action will be communicated to a Supplier through the sending of a 300W message for the estimate that is being reversed, followed by a 305 message for the new estimate that has been interpolated from the present actual being processed.

Any previous estimates that are greater than the present actual will be reversed. Figure 4.1 below describes a situation where an actual is received resulting in the reversal of two previous estimates.

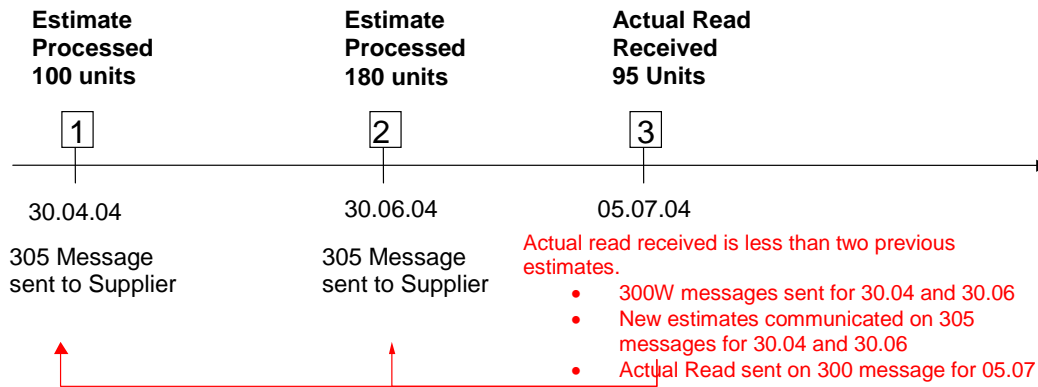


Figure 4.1 : Processing an Actual read that is less than previous estimates

The first step in the time line described in figure 4.1 shows a full set of estimated readings at a meter point being estimated and processed for a billing period resulting in a 305 message being sent to the Supplier. The estimates would also be used by DUoS billing.

The second step occurring on the 30.06.2004 again uses a complete set of estimates for this site. As with step one, the estimated readings would be communicated to the Supplier via the 305 message. The estimated reads would also be used in DUoS billing.

Step 3 in figure 4.1 describes a set of actual reads being processed for this site. The actual reads are less than the previously processed estimates.

To facilitate the successful processing of the actual, the previous estimates that are greater than actual will be reversed. This will result in the sending of a 300W message for the estimates processed on the 30.04.2004 and a separate 300W being sent for the estimates processed on the 30.06.2004. Since both sets of estimates have been processed through DUoS billing, they would have been communicated to the Supplier in the supporting information behind the invoice. The next invoicing run will show a reversal line item for each set of estimates. This subject is dealt with in more detail in section 5.7 *Billing / Invoicing Reversals*. With the benefit of the actual read received, new estimates are produced for the dates 30.04.2004 and 30.06.2004. For each set of new estimates a 305 message is sent to the Supplier. A 300 message is sent to the Supplier for the set of actual reads processed on the 05.07.2004.

A present less than previous situation can occur for any actual read processed (e.g. meter works, Change of Supplier, Customer Own Read).

An example scenario is played out in section 6.2 of this document

It is worth noting that where a site has a number of registers and where combinations of estimated and actual reads are returned for a given business process, then all reads will be treated as actual. Therefore, the Supplier will receive a 300 message.

4.6 Customer Own reads (CoR)

Customers can supply own reads to the Data Collection function through various channels in response to no access cards left for scheduled meter reading calls. CoRs can also be furnished from customers via their supplier using Market Message 210 (or 010 in the case of CoS). CoRs will be dealt with as follows:

- Where CoR relates to a closed meter reading / billing period, (i.e. the meter read date of the CoR pre-dates the last DUoS billing), the reading will be rejected.
- Should the CoR fall within a current meter reading / billing period that is still open and can be matched open periodic meter reading order (e.g. 30.04.04 – 12.05.04 period in the example below), the CoR will be recorded as an actual meter read to fulfil the open periodic meter reading order, followed by the normal **scheduled** DUoS billing, invoicing and aggregated invoicing to supplier
- Where CoR relates to an open meter reading / billing period and cannot be matched to an open periodic meter reading order, then the meter reading will be processed as an out of cycle read (e.g reading supplied on the 13.05.04 in the example below).
 - where it is less than the DUoS billing reading, it will be processed with generation of market message 300 and with the update of usage factors. Furthermore, billing reversal and re-estimation of the overestimated DUoS billing reading will occur.
 - where the COR is greater than the DUoS billing reading, it will be processed with generation of market message 300 and update of usage factors. No DUoS billing will be effected, however, for this advance in reading.

The processes described below are applicable to CoRs provided direct by customer or through their suppliers.

Example

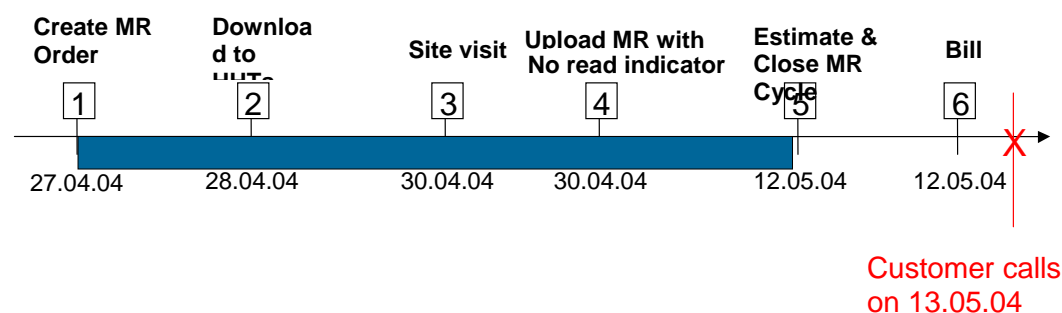


Figure 4.2 CoR in respect of a closed billing period

Meter Reader visited installation on the 30.04.04 (scheduled read date) and left a card due to no access. The scheduled reading is automatically estimated and billed on the 12.05.04 (end of meter reading / billing period) with a value of 100 for the scheduled read at 30.04.04. The customer rings on the 13.05.04 and communicates a reading of 90.

This will be processed as follows:

- Withdrawal of affected meter reading for 30.04.04 for 100 – Market message 300W

- Reversal of billing and invoicing document in respect of the MPRN invoice line
- Re-estimation of affected meter reading for 30.04.04 for 100 – Market message 305
- Generation of Market message 300 to registered supplier confirming plausible own reading
- Generation of adjustment lines on MPRN Level Invoice Item Detail for next supplier invoice

Where the original MPRN invoicing line and subsequent reversal line occur in the same aggregated invoicing period, the replacement invoicing line will only be displayed on the aggregated invoice that issues to supplier. The original MPRN invoicing line and the corresponding invoice reversal line will not be displayed as they cancel each other.

Should the CoR not be less than the previously billed reading, the following occurs:

- Generation of Market message 300 to registered supplier confirming plausible own reading
- Usage factor update
- No DUoS energy billing as DUoS follows the billing schedule

A Customer Own read scenario is described in section 6.3 of this document.

4.7 Special Reads

Special reads are out-of-cycle reads that can be requested by suppliers, data collector, etc. Should the special read be requested by supplier to support a CoS or CoLE, then it will be treated from a DUoS billing perspective in accordance with Sections 4.1 or 4.2 as appropriate.

Special reads requested by suppliers or by data collector, etc for other purposes will be recorded as actual meter reads if deemed plausible and if higher than previous estimated read, and will result in:

- Generation of Market message 300S to registered supplier
- Usage factor update
- No DUoS energy billing as DUoS follows the billing schedule

Should the special read be less than the previous estimated read, it will result in:

- Generation of Market message 300S to registered supplier
- Withdrawal of any affected meter readings – Market message 300W
- Reversal of billing and invoicing documents in respect of the MPRN invoice lines for all affected readings.
- Re-estimation of affected meter readings – Market message 300
- Generation of adjustment lines on MPRN Level Invoice Item Detail for next supplier invoice.

4.8 Meter Works

Readings in respect of the following non-scheduled events are passed to the billing engine

- Readings in respect of de-energisation and re-energisation
- Start readings for meter configurations pertaining to the installation of new meters or exchanged meters
- Start readings for additional meter configurations
- Final readings for removed meters

These readings are communicated to suppliers via appropriate market messages. Usage factors are updated. However, no DUoS billing occurs at this point.

4.8.1 Readings for De-energisation

Readings in respect of de-energisation of NQH meter points are input to SAP IS-U, whereupon, they are validated. Following validation, plausible readings are passed to the billing engine. Market Message 106D issues to registered supplier of a QH meter point informing of the de-energisation event. Market message 306 issues to the registered supplier to confirm de-energisation and associated reading. Where a meter is removed at de-energisation of a NQH meter point, Market Message 332 issues to the registered supplier. No MM 306 is sent in this case.

Whilst no DUoS energy billing generally occurs at the time of processing of these out of cycle reads, the readings will be subsequently used at the next scheduled billing of the relevant MPRNs to calculate energy consumption for the scheduled billing period. In accordance with agreed market rules, standing and capacity charges will continue to apply for the balance of the scheduled billing period and subsequent billing periods pending re-energisation or de-registration.

4.8.2 Readings for Re-energisation

Readings in respect of re-energisation of NQH meter points are again input to SAP IS-U, whereupon, they are validated. Following validation, plausible readings are passed to the billing engine. Market Message 106E issues to registered supplier of a QH meter point informing of the re-energisation event. Market message 307 issues to the registered supplier to provide notification of the re-energisation and the associated reading. Where a meter is installed at re-energisation of a NQH meter point, Market Message 332 issues to the registered supplier. No MM 307 is sent in this case.

Whilst no DUoS energy billing generally occurs at the time of processing of these out of cycle reads, the readings will be subsequently used at the next scheduled billing of the relevant MPRNs to calculate energy consumption from the date of re-energisation to date of the scheduled billing period. In accordance with agreed market rules, standing charges will continue to apply for the duration of any de-energisation portion of any scheduled billing period.

4.8.3 Readings for Meter Configuration Changes

Supplier request changes to metering configuration for a meter point via Market Message 030 through DSO. This process includes requests for additional meters and meter exchanges. It also includes DSO initiated changes to metering e.g. as part of a planned replacement programme. Should the proposed change of metering configuration result in a change of MIC, the process as described in Section 4.4 applies. The necessary meter works are effected by the DSO/MO, following receipt of appropriate documentation from customer, where applicable.

Readings in respect of meter configuration changes of NQH meter points are again input to SAP IS-U, whereupon, they are validated. Following validation, plausible readings for old and new meters are passed to the billing engine. Market message 332 issues to the registered supplier communicating the new or changed meter details including associated readings. Market message 331 issues to registered supplier in respect of QH meter point configuration changes.

Consumption in respect of additional meter installations will be determined at the next scheduled billing of the meter point by determining the advance in reading between the start read and the subsequent scheduled reading. Where a like for like meter exchange takes place the consumption for the billing period will be determined by summing consumption for the removed meter and new meter. The closing reading for a removed meter will be used in determining final consumption and will be included in the next scheduled billing of the meter point.

Where final readings in respect of removed meters or de-energised readings are less than previous estimated readings, it will result in:

- Reversal of billing and invoicing documents in respect of the MPRN invoice lines for all affected readings.
- Withdrawal of any affected previous overestimated readings – Market message 300W
- Re-estimation of previous overestimated meter readings – Market message 305
- Generation of Market message 332 to registered supplier confirming plausible final reading for removed NQH meter
- Generation of adjustment lines on MPRN Level Invoice Item Detail for next supplier invoice.

A meter exchange is described in section 6.8 of this document whilst a de-energisation is described in section 6.9.

4.9 Reversal of NQH Readings

Within the Networks solution, the processing and communication of NQH reads is integrated to the billing of DUoS charges at MPRN level. Section 5.7 *Billing / Invoicing Reversals* communicates how NQH billing reversals will be dealt with from a DUoS perspective. This section will explain how messaging will communicate the reversal/withdrawal of a read.

Whenever Networks complete a process that requires a meter reading, a market message is sent to the appropriate Supplier/s. If that process were reversed a “W” message will be sent to the appropriate Supplier/s. A business reference number is communicated in the message with the relevant NQH read. If the process were reversed

the “W” message sent to communicate the reversal will hold the same business reference number. Therefore, the business reference number can be used by the Supplier to associate the original business process and the withdrawal of that business process.

The figures below provide two examples of how reversals will be communicated.

Figure 4.3A describes how a meter read withdrawal would be communicated.

Figure 4.3B describes how a meter works withdrawal would be communicated.

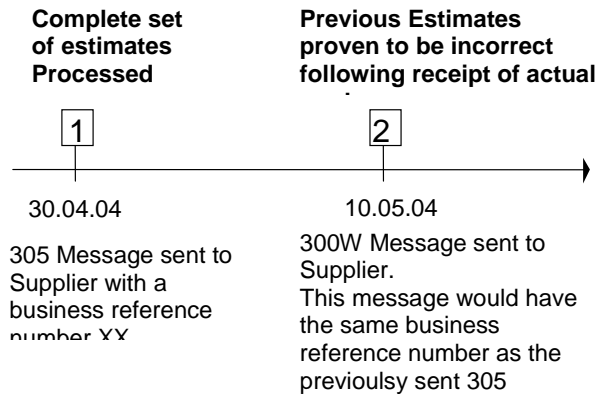


Figure 4.3A : A withdrawn estimated read communicated to a Supplier

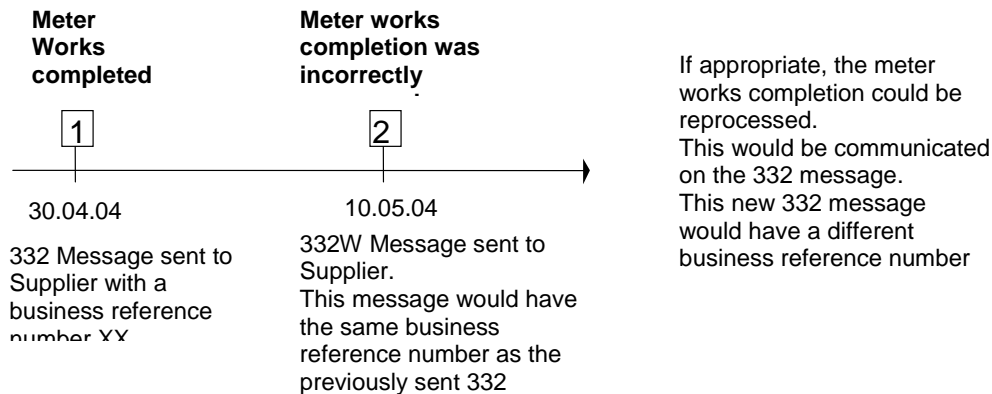


Figure 4.3B : A withdrawn NQH meter works completion message

4.10 QH Replacement Reads

When QH reads are processed by Networks they are sent to market participants via the 341 messages. It is possible that the quarter hourly data communicated for a given day will need to be replaced. If this occurs, a Supplier will receive a complete set of readings

for the given day on the 341 message. There is no withdrawal message to withdraw the reads originally communicated.

This situation could arise if the PDS system has estimated a set of reads for a site on a given day. These estimates will be communicated to the Supplier on the 341 message. When the actual reads are received for the day that was previously estimated, they will be communicated to the Supplier in a new 341 message.

If replacement QH reads are to be sent, the Supplier will be contacted by Networks to advise that the 341 message will be sent with replacement reads. Note:- This will be a resend of the data for the complete day in question.

4.11 Manual Billing

Manual billing will be typically utilised to bill MPRNs for adjustments. This typically will cover the following scenarios:

- metering malfunction (time switches, damaged meters, stopped registers)
- revenue protection activities
- non-register rate amendments (standing and capacity charges)

Manual billing will also be necessary to deal with post go live amendments pertaining to legacy system transactions.

Values are entered manually to SAP IS-U. A billing document will also be generated following processing of the manual billing. All manual billing will have a separate line on the backing documentation (i.e. the *MPRN Level Invoice Item Detail*) that will support the aggregate invoice. This could be a debit or credit line depending on the nature of the transaction.

Following quantification of unrecorded consumption for the affected MPRN, details will be communicated offline by Networks to the customer and in agreement with their registered supplier.

5. Key Billing Concepts and Principles

5.1 Distribution Use of System (DUoS) Tariffs

Annual Schedules of Distribution Use of System Charges are approved by CER and published on the CER web site.

5.2 Billing Periods

Scheduled MPRN billing and invoicing for NQH sites will be effected every two months, based on an assigned meter reading and billing schedule. The length of the billing period will generally be of the order of the 58 to 64 calendar days with an average target of 61 days, but they can vary upwards and downwards. For example, where change of cycle is assigned to individual MPRNs, a once off change in the billing period can lead to an increase or decrease of up to four weeks in the billing period. Abnormalities in billing period lengths can also occur due to Christmas and Easter bank/public holidays.

Scheduled MPRN billing and invoicing for QH sites will be effected each month covering the previous calendar months readings.

Billing periods in respect of non-scheduled reading events will vary in accordance with the effective date for processing of the event involved. Where a change of 'contract' is encountered the initial billing of the 'new contract' will take place at the next scheduled billing for the MPRN and will cover the period from the effective date (plus one) for the event involved to the date of the next scheduled billing (i.e. billing date to). The final billing of the 'old contract' will generally apply from date of last scheduled billing (or other non-scheduled billing if applicable) plus one to the effective date for the event involved. MPRN invoicing will take place on the following night's scheduled invoicing run. The resulting MPRN billing and invoicing documents will be included in the next scheduled aggregated invoicing run.

The billing period for each MPRN billing and invoicing reflected on the supplier invoice will be displayed on the *MPRN Level Invoice Item Detail* in the Billing Date From column (Field 13) and the Billing Date To (Field 14). The Billing Date From is the date from which the billing period for the item became effective, whilst the Billing Date To represents the date to which the billing period for the item was effective.

5.3 Proration

Prices for Standing and Capacity Charges will be specified per annum and prorated on a daily basis.

See Tables below for example of application of formula.

Table 1

Standing Charge	€12/Annum
Bill from Date:	01/06/2003
Bill to Date:	28/07/2003
Bill Period Length	58 Days
Standing Charge:	12/365 (or 366 leap year) *58 = €1.906 (Rounded billing value €1.91)

Table 2

Standing Charge	€12/Annum
Move in Date:	11/06/2003
Bill to Date:	28/07/2003
Bill Period Length	48 Days
Standing Charge:	$12/365$ (or 366 leap year) *48 = €1.578 (Rounded billing value €1.58)

Table 3

Standing Charge	Till 30/06/03: €12/annum From 01/07/2003: €24/annum
Bill from Date:	01/06/2003
Bill to Date:	28/07/2003
Bill Period Length	A = 30 days B = 28 days
Standing Charge:	$(12/365(\text{or } 366 \text{ leap year}) *30) + (24/365(\text{or } 366 \text{ leap year}) *28) = (\text{€}0.986 + \text{€}1.841)$ (Rounded billing value €2.83 i.e.€0.99+€1.84)

Normal rounding conventions will be applied to the output values – billing value will be displayed to two places of decimal with the second digit value after the decimal rounded downwards for values (<0.5) and upwards for values (>=0.5). Where multiple billing periods are employed, rounding will be effected to the output value for each time period – see Table 3.

5.4 Surcharges

Maximum Import Capacity (MIC) and Low Power factor (LPF) surcharges are a component of the Distribution Use of System Charges and where applicable are an additional charge to the customer and are controllable by the customer. The surcharges are applicable where customer:

- exceeds their contracted MIC
- has reactive or 'wattless' power above a defined proportion of active power

5.4.1 Maximum Import Capacity Surcharge

A customer's MIC (in kVA) is the maximum electrical capacity of the connection point agreed between ESB as Distribution System Operator and the customer. The MIC surcharge is applied to NQH customers in every two monthly billing period and to QH customers on a monthly basis. The Surcharge is applied when the customer exceeds their contracted MIC. There is no proration in the application of the surcharges for any billing period. They are applied in full to part billing periods e.g. CoS, CoLE. There is no carry forward to the next period. The purpose of the surcharge is to discourage users of the distribution system from exceeding their MIC, which has considerable safety implications.

If MD peak measurement (KVA) > MIC **then** pay Surcharge

Excess Capacity (kVa) = Subtract MIC from peak measurement

QH MIC Surcharge = Excess Capacity (kVa) * 3 *Capacity Charge Rate

NQH MIC Surcharge = Excess Capacity (kVa) * 4 *Capacity Charge Rate

KVA is calculated as follows,

QH Installations

The Maximum Demand (MD) for QH installations (DG7 – DG10) is calculated for each quarter-hour set of figures in kW and kVA on a 24/7 basis for the billing period and the highest MD in kVA for the billing period is selected as the MD value. Maximum Demand is established for each quarter-hour by the following conversion:

$$\mathbf{kVA} = \sqrt{(\mathbf{kW}^2 + \mathbf{kVAr}^2)}$$

The Maximum Demand (MD) for QH DG6 installations is calculated for each quarter-hour set of figures in kW and kVA on a 08h00 – 21h00, Mon-Fri basis and the highest MD in kVA for the billing period is selected as the MD value. Maximum Demand is established for each qualifying quarter-hour by the following conversion:

$$\mathbf{kVA} = \sqrt{(\mathbf{kW}^2 + \mathbf{kVAr}^2)}$$

NQH Installations – DG6

The MD for NQH installations is calculated from the MD figure in kW divided by the power factor which is calculated from the kWh & kVAh figures for that billing period.

Maximum demand is measured over the two month billing period between 08h00 – 21h00, Mon-Fri.

The measured demand in kW is converted to kVa by applying the following formula,

$$\mathbf{Power\ Factor\ (PF)} = \frac{\mathbf{A}}{\sqrt{(\mathbf{A}^2 + \mathbf{B}^2)}}$$

Where

A = kWhs (Total of Day + Night for the billing period)

B = kVAh (Total for the billing period)

The MD in kVa is equal to the MD in kWhs divided by the PF

$$\mathbf{MD\ in\ kVA} = \frac{\mathbf{MD\ kWhs}}{\mathbf{PF}}$$

Where no wattless reading is available an assumed Power Factor of 0.95 is used in converting the measured demand in kW to kVA

MIC Surcharge details are reflected on the *MPRN Level Invoice Item Detail* as follows

Field 23 – Maximum Import Capacity

The MIC is the Maximum Import Capacity in kVA which has been agreed by the customer in the connection agreement with the DSO.

Field 24 – Max kVA

This is the recorded max kVA for the MPRN for the billing / invoicing period

Field 25 – MIC Surcharge

This is the penalty surcharge where a customer exceeds the agreed level of MIC.

5.4.2 Low Power Factor Surcharges

The Low Power Factor Surcharge applies when the metered kVAh is more than one third of the metered kWh in any two monthly billing period (NQH) and in any monthly billing period (QH).

The Low Power Factor Surcharge is calculated as follows,

Add all active register values = Sum (Active)

Add all reactive registers = Sum (Reactive)

If Sum (Reactive) > 1/3 (Sum (Active))

Then,

Subtract 1/3 Sum (Active) from Sum (Reactive) = Excess Reactive

LPF Surcharge = Excess Reactive * LPF Surcharge Price

QH Installations

- The low power factor surcharge will apply when the metered kVAh is more than one third of the metered kWh (in any monthly billing period).
- The charge is applicable to the kVAh in excess of one third of the kWh.
- There is no pro-rata application of surcharges; they are applied in full, based on consumption in the measured period.

NQH Installations

- The low power factor surcharge applies when the metered kVAh is more than one third of the metered kWh (in any 2 monthly billing period).
- The charge is applicable to the excess of one third of the kWh.
- There is no pro-rata application of the surcharge, it is applied in full, based on consumption in the measured period.

LPF Surcharge details are reflected on the *MPRN Level Invoice Item Detail* as follows:

Field 15 – Day kWh consumption
Field 17 – Night kWh Consumption
Field 19 – 24hr kWh Consumption

Display the total kWh energy consumption for the MPRN for the billing period for day, night and 24hr respectively

Field 26 – Reactive Energy kVArh
Reactive consumption as measured at the meter point for the billing period both QH and NQH.

Field 27 – Power Factor Surcharge
This is a penalty for Low Power Factor (LPF).

5.5 Tariff Price Changes

Annual schedules of Distribution Use of System Charges are approved by CER and published on the CER web site. The effective date for the new charges has traditionally been the 1st day of January for the applicable year.

As price increases will normally occur within MPRN billing periods for both scheduled and non-scheduled NQH billing and invoicing processing, the application of price changes will be effected as follows:

Standing charges and capacity charges in respect of the MPRN billing period will be time sliced with the old charges applicable for the period (number of days) covering the Billing From date up to and including the 31st December. The new charges will be applicable for the period (number of days) from the 1st January up to and including the Billing To Date.

The calculated day, night and 24hr kWh consumption for the billing period will be time sliced for the billing period by estimating consumption proportionately for both periods using the standard estimating algorithm. Energy charges will be calculated through application of old and new prices to the estimates derived for both time slices determined for the billing period.

The application of tariff price changes for QH billed meter points is more straight-forward as changes are usually applicable from the first day of the calendar month.

A tariff price change scenario is described in section 6 of this document

5.6 Energy Consumption Determination

The reading advance (i.e. the difference between the current and the previous valid reading) for each meter register that accumulates consumption for billing and settlement purposes is converted to a kWh consumption value. Meter clockovers will be automatically handled by SAP IS-U to reflect actual consumption. Energy consumption by Day, Night & 24hr for each billing period is determined and reflected on the *MPRN Level Invoice Item Detail* as follows:

Field 15 – Day kWh Consumption – (08.00 – 23.00)
The Day rate energy consumption, if applicable, recorded in kWh that was determined for the current billing /invoicing period of the MPRN provided in the line item charge. For NQH MPRNs, this would be determined by the system by

deducting the last meter reading that was subject to a billing / invoicing process from the current scheduled meter reading or any reading provided to facilitate termination of any contract. Multipliers are applied where applicable. Where multiple day/night registers are encountered at any MPRN, the total day consumption is determined by aggregating the derived consumption determined for each day register for the billing period. For QH MPRNs the day consumption for the period is determined based on all the 15-minute profile meter readings applicable to the billing period.

Field 17 – Night kWh Consumption (23.00 – 08.00)

The night rate energy consumption, if applicable, recorded in kWh that was determined for the current billing /invoicing of the MPRN provided in the line item charge. For NQH MPRNs, this would be determined by the system by deducting the last meter reading that was subject to a billing / invoicing process from the current scheduled meter reading or any reading provided to facilitate termination of any contract. Multipliers are applied where applicable. Where multiple day / night registers are encountered at any MPRN, the total night consumption is determined by aggregating the derived consumption determined for each night register for the billing period. For QH MPRNs the night consumption for the period is determined based on all the 15-minute profile meter readings applicable to the billing period.

Field 19 – 24 Hr kWh Consumption

The 24hr energy consumption, if applicable, in kWh that was determined for the current billing /invoicing period of the MPRN provided in the line item charge. For NQH MPRNs, this would be determined by the system by deducting the last meter reading that was subject to a billing / invoicing process from the current scheduled meter reading or any reading provided to facilitate termination of any contract. Multipliers are applied where applicable. Where multiple 24hr registers are encountered at any MPRN, the total 24hr kWh consumption is determined by aggregating the derived consumption determined for each 24hr register for the billing period.

A number of non standard Metering Configurations will exist when the market is opened. To facilitate DUoS billing, it will be necessary to sum the consumption at the registers that repeat a Time of Use. The table below provides an example of where two registers will be summed before a charge is applied for DUoS purposes.

Table 5.1: Calculating DUoS for MCC56 – Standing and Capacity Charges excluded

MCC	Register	Calculate	Price	Charge
MCC 56	MD	Maximum Demand	Capacity Charge Price	MIC Surcharge
	Night (KWH)	Night A + Night B	Night Price	Night Charge
	Night (KWH)			
	Day (KWH)	*	Day Price	Day Charge
	Wattless (KVARH)	*	Wattless Price	LPF Surcharge

See Configuration Code Guidance Notes for further information on non-standard metering configurations.

5.7 Billing / Invoicing Reversals

Billing / invoicing reversals are a necessary feature of billing and invoicing processing and are triggered by:

- Receipt of actual meter reading with a lower value than an estimated meter reading to which a billing, invoicing or aggregated invoicing has been generated
- Receipt and validation of an actual reading that is lower than previously recorded actual readings (assumes no clock-over) to which a billing, invoicing or aggregated invoicing has been generated.
- System entry of incorrect scheduled or non-scheduled meter readings/consumptions
- Delayed processing of meter related meter works where the effective date for installation or removal pre-dates other readings to which a billing, invoicing or aggregated invoicing has been generated.
- Incorrectly operated registrations including change of supplier, change of legal entity and change of DUoS Group.

The consequences of these triggers include:

- Reversal of all intervening billing and invoicing documents at the MPRN level.
- Correction of all affected meter readings
- Issue of meter reading withdrawal and replacement messages to suppliers
- Production of replacement billing and invoicing documents
- Adjustment lines on next supplier invoice. Separate lines will be included in the *MPRN Level Invoice Item Detail* for each reversal and each rebilling event applicable to any meter point.

The replacement billing / invoicing line will only be included in the *MPRN Level Invoice Item Detail* where the original billing / invoicing event and any subsequent reversal and/or replacement takes place within the currency open aggregated invoicing period.

5.8 Treatment of VAT

VAT is applied as normal on Supplier invoices/credit notes.

VAT is also calculated at the MPRN level during the nightly batch invoice processing of MPRN billing documents in SAP IS-U. Output from this invoice processing is displayed in the *MPRN Level Invoice Item Detail* flat file, field 28 of which reflects the total net charge (exclusive of VAT) and field 29 which reflects the gross charge (inclusive of VAT) that is applicable to each invoice item. This gross amount is provided to facilitate the Supplier when raising designated disputes i.e. the Supplier withholds payment of the gross amount of an invoice item pending resolution of a designated dispute.

Minor rounding differences can be anticipated between the total of the Gross Amount fields included *MPRN Level Invoice Item Detail* and the gross amount as shown on the Supplier Invoice/Credit Note which produced as part of the aggregated invoicing process in SAP IS-U.

6. Business Scenarios & MPRN Level Invoice Item Detail Documentation

6.1 General

This section considers a range of typical business scenarios that will feature in the open electricity market and demonstrates their impact on the *MPRN Level Invoice Item Detail* documentation following meter reading, billing, invoicing and aggregated invoicing processing. Reading estimates and money values used in the scenarios are for illustrative purposes only.

The following scenarios are addressed

- Receipt of actual meter reading with values lower than previous estimated readings
- Customer own reading processing
- Change of Supplier process
- Change of Legal Entity process
- Change of DUoS Group Process
- Change of Maximum Import Capacity (MIC) process
- Delayed processing of meter exchange
- De-energisation
- Tariff Adjustments

6.2 Receipt of actual meter reading with values lower than previous estimated readings

Scenario

Following issue of scheduled meter reading order to meter reader, an actual meter reading result is received in SAP IS-U that is lower than two previously estimated scheduled readings. The actual meter reading is deemed plausible and the billing order status is updated to 'billable'. The overestimates are re-estimated by interpolation of the actual readings.

See Figure 6.2 for detailed presentation of this scenario

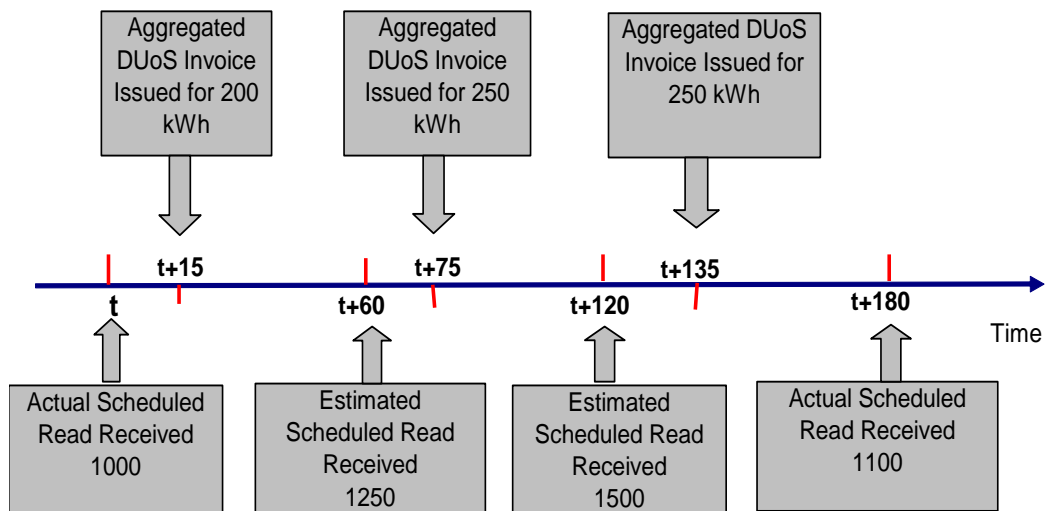


Figure 6.2 Present Less than Previous

Consequences

- Reversal of all billing and invoicing documents in respect of the MPRN line item on DUoS supplier invoices for (t + 75) and (t + 135).
- Withdrawal of affected meter readings received and processed at (t + 60) and (t + 120) – Market Message 300W
- Re-estimation of affected meter readings for (t + 60) and (t + 120) – Market Message 305
- Production of replacement billing and invoicing documents for affected readings
- Generation of adjustment lines on *MPRN Level Invoice Item Detail* for next supplier invoice

The *MPRN Level Invoice Item Detail* supporting the next aggregated supplier invoice at (t + 195) is portrayed as follows (relevant details only included):

Invoice No	Item No	Adjustment Reference	Billing Date From	Billing Date To	24hr kWh Consumption	24h Energy Charge	Standing Charge	Net Amount	Key Invoice Item to Line
9	1074527	1032289	t + 61	t + 120	-250	-6.98	-6.73	-13.71	Full Reversal of supplier invoicing at (t + 135)
9	1074528		t + 61	t + 120	35	0.98	6.73	7.71	Re-invoicing of re-estimation for period (t + 61) to (t + 120)
9	1074529	993672	t	t + 60	-250	-6.98	-6.73	-13.71	Full Reversal of supplier invoicing at (t + 75)
9	1074530		t	t + 60	35	0.98	6.73	7.71	Re-invoicing of re-estimation for period (t) to (t +60)
9	1074531		t + 121	t + 180	30	0.84	6.73	7.57	New charge for period (t + 121) to (t +180)

6.3 Customer Own Reading Processing

Scenario

The meter reader fails to obtain access to the meter location for a MPRN for the purposes of obtaining a scheduled reading and leaves a card inviting the customer to ring the call centre with an own reading. As no reading is available at the close of the meter reading / billing period, the billing / invoicing processing is effected on the basis of a system generated estimated meter reading for the scheduled meter reading date. The resulting invoicing output is included in the next aggregated supplier invoicing. The customer rings the call centre 15 days later and provides a current own reading. This reading which is less than the last estimate in respect of a scheduled reading is deemed plausible.

See Figure 6.3 for detailed representation of this scenario

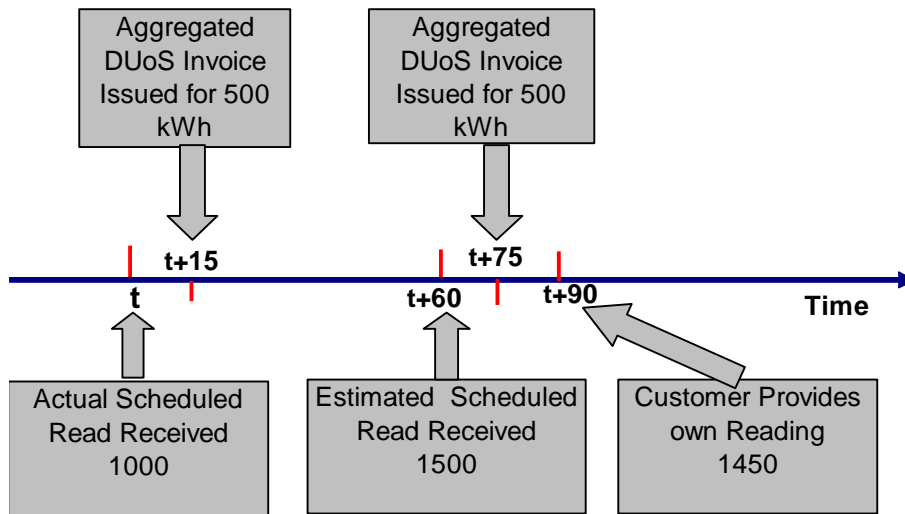


Figure 6.3 Customer Own Read

Consequences

- Reversal of billing and invoicing document in respect of the MPRN invoice line item on DUoS supplier invoice for (t + 75) for affected reading at (t + 60)
- Withdrawal of affected meter reading (t + 60) – Market Message 300W
- Re-estimation of affected meter readings (t + 60) resulting in an estimated reading of 1270
- Production of replacement billing and invoicing documents for the affected reading (t + 60)
- Market Message 305 issues to communicate replacement estimated reading at (t + 60)
- Billing processing for CoR at (t + 90)
- Market Message 300 to registered supplier confirming plausible customer own read of 1450 at (t + 90)
- Generation of adjustment lines on MPRN Level Invoice Item Detail for next supplier invoice
- No DUoS billing is effected for customer own reading (t + 90). This is automatically subsumed by next scheduled meter reading / billing.

The *MPRN Level Invoice Item Detail* supporting the next supplier invoice is portrayed as follows (relevant details only included):

Invoice No	Item No	Adjustment Reference	Billing Date From	Billing Date To	24hr kWh Consumption	24h Energy Charge	Standing Charge	Net Amount	Key Invoice Item to Line
7	1014532	995342	t	t + 60	-500	-13.96	-6.73	-20.69	Full Reversal of invoicing at (t+75)
7	1014533		t	t+ 60	270	7.54	6.73	14.27	Re-invoicing of consumption re-estimation of 270 for period t to (t+60)

The 'Key to Invoice Line Item' column is not included in the *MPRN Invoice Item Detail*. It is included here to facilitate reader understanding through provision of the reason for the invoice line item. Actual dates will of course be reflected (YYYYMMDD) in the *MPRN Level Invoice Item Detail*. This illustration is for an urban customer (DG1)

6.4 Change of Supplier Process

Scenario

Supplier S01 requests change of supplier process in respect of customer for a MPRN and provides a required date with customer own reading. MRSO operate the change of supplier for the supplied reading which is deemed plausible and process the registration of change of supplier from supplier S02 to S01 for the required date. Final billing of the MPRN in respect of Supplier S02 is effected. Initial billing / invoicing in respect of Supplier S01 is effected at next scheduled meter reading / billing of the MPRN.

See Figure 6.4 for detailed representation of this scenario

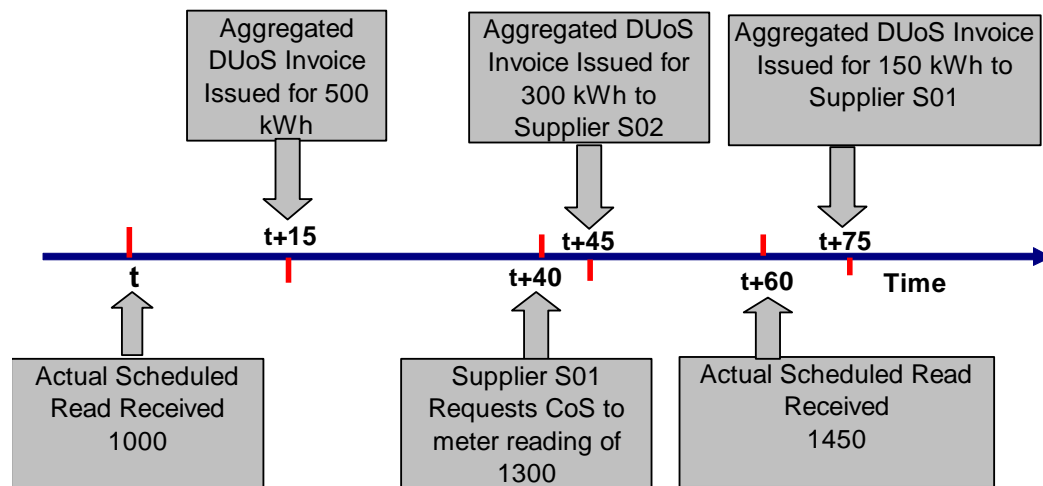


Figure 6.4 Change of Supplier

Consequences

- Market Message 010 received from Supplier S01 advising CoS details including provided reading of 1300
- CoS processed by MRSO, the provided reading is deemed plausible and Market Message 310 issues to Supplier S02 with closing reading included.
- Market Message 320 issues to Supplier S01
- Final Billing of Supplier S02 is issued for provided meter reading of 1300 for ($t + 40$).
- Final Billing is reflected in aggregated invoicing to Supplier S02 at ($t + 45$)
- Billing / invoicing documents in respect of actual reading of 1450 processed for next scheduled meter reading for the MPRN
- Market Message 300 issues for scheduled reading of 1450 at ($t + 60$)
- Supplier invoice issues to Supplier S01 at ($t + 75$) for initial billing period ($t + 41$) to ($t + 60$).

The *MPRN Level Invoice Item Detail* supporting the supplier invoice to Supplier S02 at ($t + 45$) is portrayed as follows (relevant details only included):

Invoice No	Item No	Adjustment Reference	Billing Date From	Billing Date To	24hr kWh Consumption	24h Energy Charge	Standing Charge	Net Amount	Key to Invoice Line Item
3	974128		t	t+ 40	300	8.38	4.48	12.86	Final Billing to Supplier S02 at (t + 45) for period (t) to (t + 40)

The *MPRN Level Invoice Item Detail* supporting the supplier invoice to Supplier S01 at (t + 75) in respect of next scheduled reading covering initial billing / invoicing period (t + 41) to (t + 60) is portrayed as follows (relevant details only included):

Invoice No	Item No	Adjustment Reference	Billing Date From	Billing Date To	24hr kWh Consumption	24h Energy Charge	Standing Charge	Net Amount	Key to Invoice Line Item
5	994582		t + 41	t+ 60	150	4.19	2.24	6.43	Initial Billing to Supplier S01 at (t + 75) for period (t+41) to (t + 60)

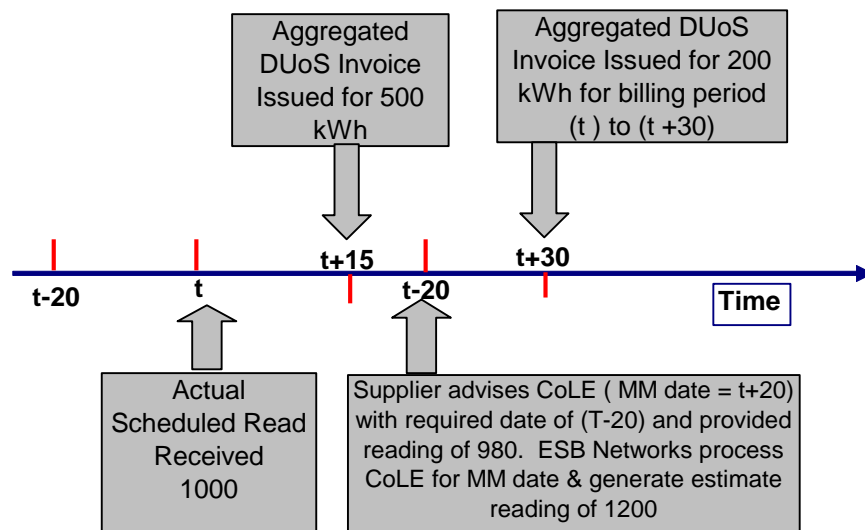
The 'Key to Invoice Line Item' column is not included in the *MPRN Invoice Item Detail*. It is included here to facilitate reader understanding through provision of the reason for the invoice line item. Actual dates will of course be reflected (YYYYMMDD) in the *MPRN Level Invoice Item Detail*. This illustration is for an urban customer (DG1)

6.5 Change of Legal Entity (CoLE) Process

Scenario

The registered Supplier advises ESB Networks of change of legal entity details in respect of the registered customer for a MPRN (<30kVA). Supplier provides a required date including read for this event. ESB Networks establishes that scheduled billing has occurred between the supplier required date and date of notification of the CoLE. In accordance with the agreed rules as determined for the mass market (<30kVA), ESB Networks determine the effective date as the message received date and generate an estimate read for this date. The CoLE is processed.

See Figure 6.5 for detailed representation of this scenario.



Consequences

- Market Message 016 advising CoLE details in respect of the registered customer at the cited MPRN. A required date including reading is provided.
- In accordance with the agreed market rules, the CoLE for the required date will not be processed as it pre-dates the last scheduled billing / invoicing. The CoLE is processed to a system-generated estimate for the Market Message date. Market Message 116 confirms completion of the CoLE for the message received date (t + 20) with a system-generated reading estimate of 1200
- Market Message 300 issues to supplier communicating the system-generated estimated reading that supported the final billing to supplier in respect of the 'old' legal entity.
- Final Billing of terminated 'contract' for 'old' legal entity for system-generated estimated reading of 1200 for (t + 20).
- This Final Billing is reflected on aggregated invoicing to Supplier at (t + 30)
- Billing / invoicing for period (t + 21) to date of provision of next scheduled plausible meter reading is included in subsequent aggregated invoicing.

The *MPRN Level Invoice Item Detail* in respect of the final billing of the 'old' legal entity supporting the supplier invoice to Supplier at (t + 30) is portrayed as follows (relevant details only included):

Invoice No	Item No	Adjustment Reference	Billing Date From	Billing Date To	24hr kWh Consumption	24h Energy Charge	Standing Charge	Net Amount	Key Invoice Line Item
2	962937		t	t+ 20	200	5.58	2.24	7.82	Final Billing to Supplier at (t + 30) for period (t) to (t + 20)

The initial billing / invoicing for the 'new' legal entity at this MPRN for the period (t +31) to date of next scheduled meter reading. We will assume that this occurred at (t + 60) with a plausible reading of 1590. This would be reflected in the next supplier invoice to Supplier at (t + 75) as follows:

Invoice No	Item No	Adjustment Reference	Billing Date From	Billing Date To	24hr kWh Consumption	24h Energy Charge	Standing Charge	Net Amount	Key Invoice Line Item
5	993897		t + 21	t+ 60	390	10.89	4.48	15.37	Initial Billing to Supplier at (t + 75) for 'new' legal entity for period (t + 21) to (t + 60)

The 'Key to Invoice Line Item' columns are not included in the *MPRN Invoice Item Detail*. It is included here to facilitate reader understanding through provision of the reason for the invoice line items. Actual dates will of course be reflected (YYYYMMDD) in the *MPRN Level Invoice Item Detail*. This illustration is for an urban customer (DG1)

6.6

Change of DUoS Group Process

Scenario 1

ESB Networks allocated DG5 (<30kVA) to a MPRN reflecting change of use from residential to business residential. As DUoS Group changes within this grouping are permitted without a new connection agreement, no 'contract' termination is necessary. ESB Networks process the change with an effective date of the 1st day of the current billing period in accordance with the agreed rules. (See Proposals for New DUoS Billing System – CER Approved February 2004). A 24hr meter is installed at this site.

See Figure 6.6A for detailed representation of this scenario

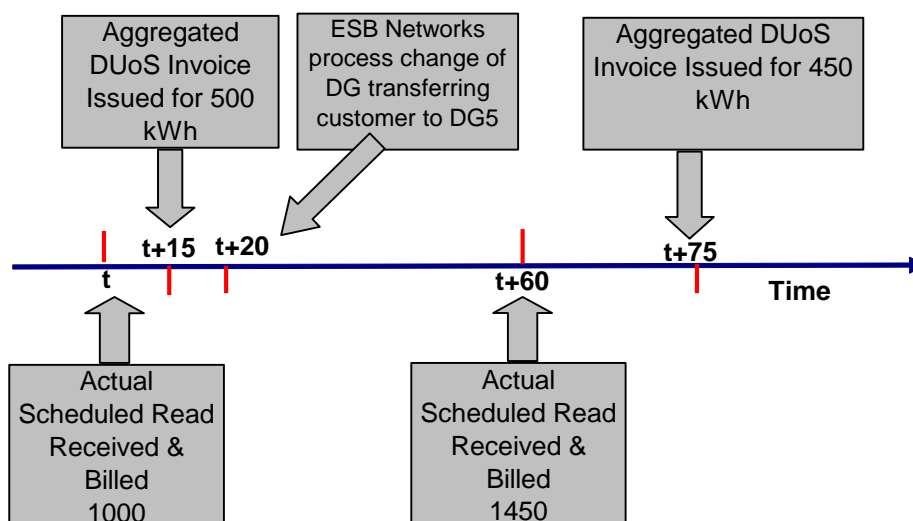


Figure 6.6A Change of DUoS Group Process

Consequences

- DG5 24hr standing charge applies for the total billing period (t) to ($t + 60$) for this MPRN
- DG5 24hr energy consumption charge will additionally apply for the total billing / invoicing period (t) to ($t + 60$) for this MPRN
- Market message 114 issues to supplier confirming change of customer details (MPD 24)
- The resulting higher charges is reflected on the supplier invoice to supplier at ($t + 75$)

The *MPRN Level Invoice Item Detail* supporting the supplier invoice to supplier at ($t + 75$) is portrayed as follows (relevant details only included):

Invoice No	Item No	Adjustment Reference	DUoS Group	Billing Date From	Billing Date To	24hr kWh Consumption	24h Energy Charge	Standing Charge	Net Amount	Key Invoice Item
5	993837		DG5	t	t+ 60	450	15.59	11.99	27.58	Increased energy and standing charges apply to the total billing period (t) to (t + 60) and are reflected in supplier invoice at (t + 75)

Scenario 2

The registered customer at a DG5 MPRN negotiates a new connection agreement with ESB Networks which increases the maximum installed capacity from 45kVa to 60kVa for the site. This necessitates a meter exchange and the installation of MD metering. DUoS Group tariff DG6 is allocated to the MPRN. NQH processing continues to apply. ESB Networks process this change in SAP IS-U.

See Figure 6.6B for detailed representation of this scenario

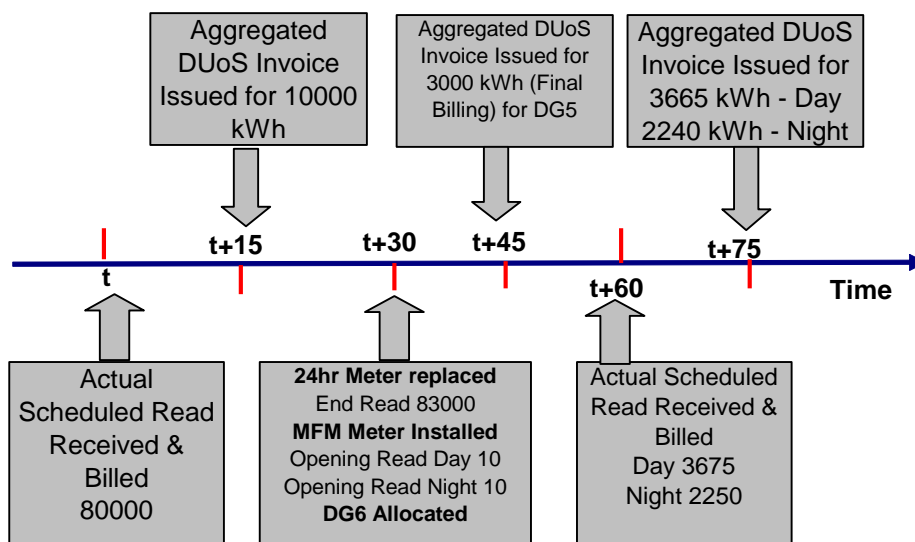


Figure 6.6B Change of DUoS Group Process

Consequences

- Final Readings for removed 24kWh meter communicated to supplier via Market Message 332
- Start Readings for day/night registers of new MD MFM meter communicated to supplier via Market Message 332
- Final billing of 'old' contract at (t + 30) based on DG5 24hr energy consumption of 3,000 kWh
- Final billing included in aggregated supplier invoicing at (t + 45).
- Initial DG6 billing for the period (t + 31) to (t+60) occurs at next scheduled reading / billing i.e. (t + 60) with standing and capacity charges pro-rated.
- Market message 300 issues to supplier to communicate the scheduled readings at (t + 60)

- This initial scheduled billing will be included in supplier invoice at (t +75)

The *MPRN Level Invoice Item Detail* supporting the supplier invoice to supplier at (t + 45) is portrayed as follows (relevant details only included):

Invoice No	Item No	Adjustment Reference	DUoS Group	Billing Date From	Billing Date To	24hr kWh Consumption	24h Energy Charge	Standing Charge	Net Amount	Key Invoice Line Item
3	975420		DG5	t	t+ 30	3000	103.95	6.00	109.95	Final billing of 'old' contract for the billing period (t) to (t + 30) and reflected in aggregated invoice to supplier at (t + 45)

The *MPRN Level Invoice Item Detail* supporting the supplier invoice at (t + 75) for the initial DG6 billing for the period (t + 31) to (t+60) is portrayed as follows (relevant details only included):

Invoice No	Item Number	DUoS Group	Billing From Date	Billing To Date	Day kWh Consumption	Day Energy Charge	Night kWh Consumption	Night Energy Charge	Standing Charge	Capacity Charge	Net Amount
5	994681	DG6	t + 31	t+60	3665	75.57	2250	5.4	114.94	130.8	326.71

This initial billing of the DG6 tariff reflects the new standing charge and the introduction of a capacity charge both pro-rated to take account of the number of days in the billing period.

6.7 Change of MIC (on its own) Process

Scenario

The registered customer at a DG6 NQH MPRN site makes application to ESB Networks for an increase in import capacity of 10 kVA which increases the total maximum import capacity to 75 kVA. ESB Networks conclude a new connection agreement with the customer for the new capacity. How is this reflected on the supporting documentation for the supplier invoice that will reflect this event?

Consequences

- Market Message 301 issued to Supplier to communicate change of connection characteristics for the concerned MPRN (MPD8)
- No increase in standing charge or energy consumption charges is applicable as the same DUoS Group continues to apply.
- The increased capacity charge in respect of the new capacity will apply from the 1st day of the next billing period i.e. (t + 61)

See Figure 6.7 for detailed representation of this scenario (Demand and wattless measurements excluded)

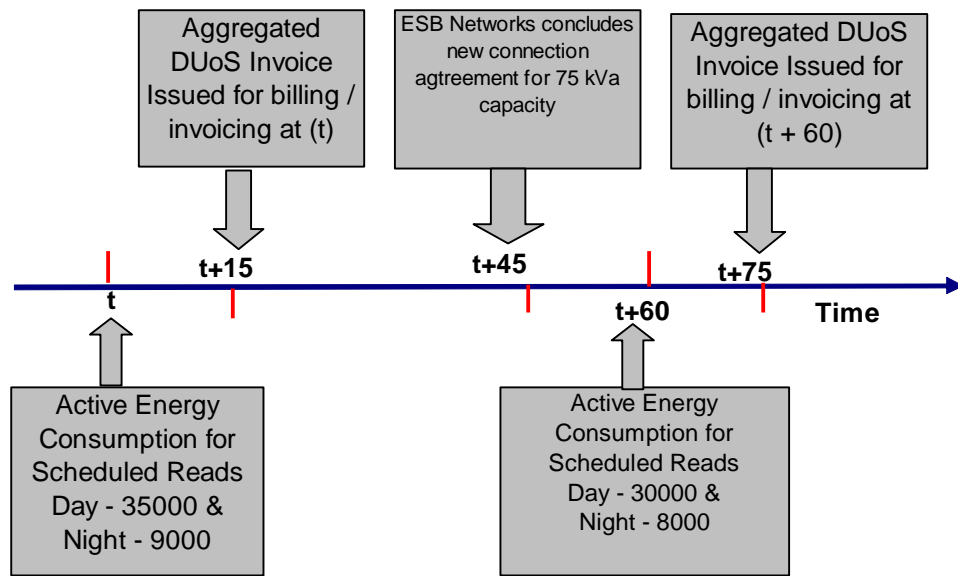


Figure 6.7 Change of MIC

The *MPRN Level Invoice Item Detail* supporting the supplier invoice to supplier at (t + 15) is portrayed as follows (relevant details only included):

Invoice No	Item No	Day kWh Consumption	Day Energy Charge	Night kWh Consumption	Night Energy Charge	Standing Charge	Capacity Charge	Net Amount
1	956720	35000	721.70	9000	21.60	114.94	141.70	999.94

The *MPRN Level Invoice Item Detail* supporting the supplier invoice to supplier at (t + 75) is portrayed as follows (relevant details only included):

Invoice No	Item No	Day kWh Consumption	Day Energy Charge	Night kWh Consumption	Night Energy Charge	Standing Charge	Capacity Charge	Net Amount
5	994678	30000	618.60	8000	19.20	114.94	163.50	916.24

6.8 Delayed Processing of Meter Exchange

Scenario

ESB Networks arrange a replacement of the 24hr meter at a referenced MPRN under a mass metering replacement programme. The Networks Technician completes the work sheet recording date of exchange, closing reading of replaced meter and opening reading of the new meter. Due to an oversight, the completed work sheet did not reach the back office responsible for SAP IS-U update until six weeks after the meter exchange. In the interim period, an estimated reading was system generated against a

scheduled meter reading order as the reader had failed to get access to the meter location.

See Figure 6.8 for detailed representation of this scenario

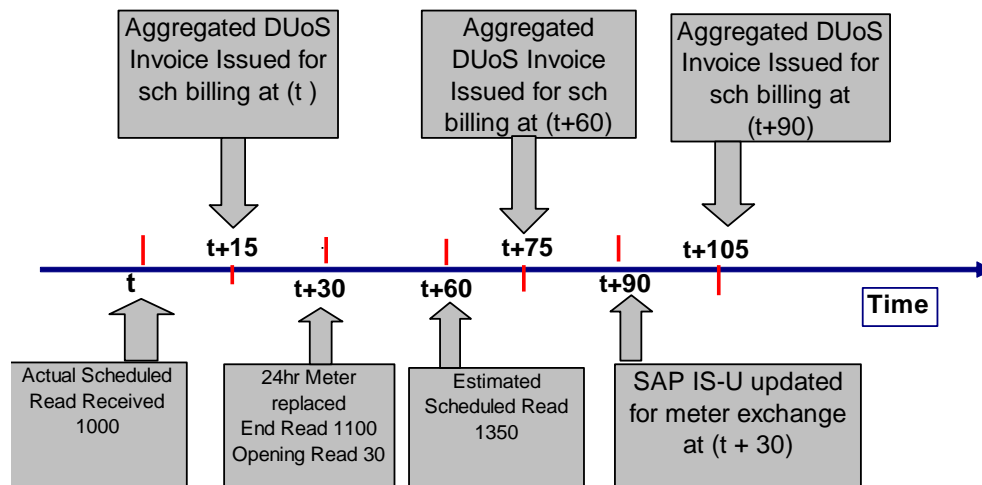


Figure 6.8 Delayed Processing of Meter Exchange

Consequences

- Reversal of billing and invoicing document in respect of the MPRN invoice line item on DUoS supplier invoice for (t + 75).
- Withdrawal of affected estimated meter reading (t + 60) – Market Message 300W
- Market Message 332 issues to communicate final reading of replaced meter at (t + 30) and start reading of new meter at (t + 31)
- Re-estimation of affected estimated meter readings for (t + 60), assume 1200 – Market Message 305
- Production of replacement billing and invoicing documents for affected reading at (t + 60)
- Generation of adjustment lines on MPRN Level Invoice Item Detail for next supplier invoice at (t + 105)

The *MPRN Level Invoice Item Detail* supporting the supplier invoice at (t + 75) is portrayed as follows (relevant details only included):

Invoice No	Item No	Adjustment Reference	Billing Date From	Billing Date To	24hr kWh Consumption	24h Energy Charge	Standing Charge	Net Amount	Key Invoice Item to Line Item
5	994689		t	t+ 60	350	9.77	6.73	16.50	Billing to Supplier at (t + 75) for billing period (t) to (t + 60)

The *MPRN Level Invoice Item Detail* supporting the supplier invoice at (t + 105) is portrayed as follows (relevant details only included):

Invoice No	Item No	Adjustment Reference	Billing Date From	Billing Date To	24hr kWh Consumption	24h Energy Charge	Standing Charge	Net Amount	Key Invoice Item to Line
7	1013467	994689	t	t + 60	-350	-9.77	-6.73	-16.50	Reversal of Billing to Supplier at (t + 75) for billing period (t) to (t + 60)
7	1013468		t	t+ 60	200	5.58	6.73	12.31	Re-billing to Supplier at (t + 105) for revised estimate for billing period (t) to (t + 60)

6.9 De-energisation

Scenario

Supplier S01 requests de-energisation for a DG1 MPRN. DSO arranges the de-energisation and returns works order to the back office SAP IS-U database update team. SAP IS-U is subsequently updated.

See Figure 6.9 for detailed representation of this scenario.

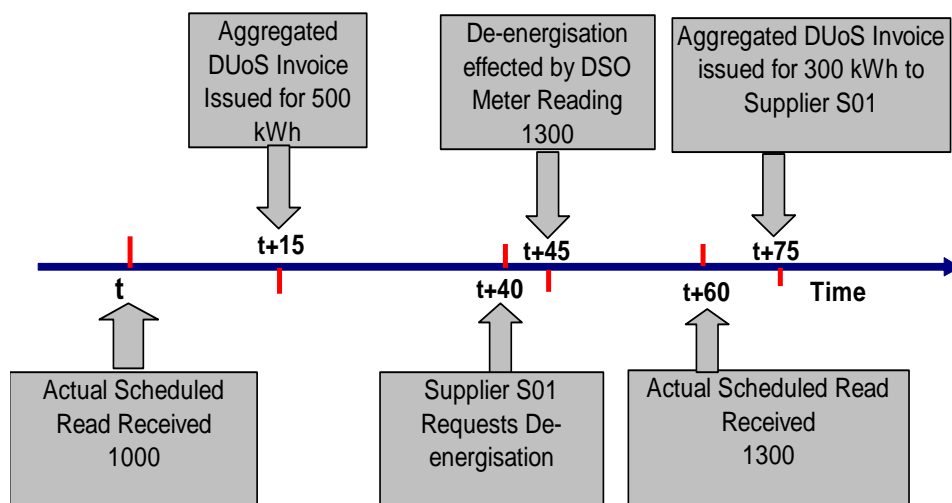


Figure 6.9 De-energisation

Consequences

- De-energisation effected by DSO at (t + 45). Market Message 306 issues to Supplier S01 confirming completion of transaction and including meter reading of 1300
- Scheduled meter reading effected at (t + 60) which confirms that reading remains at 1300. Scheduled billing / Reading also affected. Market Message 300 issues to supplier S01
- Aggregated invoicing to supplier S01 at (t + 75) for the billing period (t) to (t + 60)

The *MPRN Level Invoice Item Detail* supporting the supplier invoice at (t + 75) is portrayed as follows (relevant details only included):

Invoice No	Item No	Adjustment Reference	Billing Date From	Billing Date To	24hr kWh Consumption	24h Energy Charge	Standing Charge	Net Amount	Key Invoice Item to Line
5	994697		t	t+ 60	300	8.38	6.73	15.11	Billing to Supplier at (t + 75) for billing period (t) to (t + 60)

Should this MPRN continue to be de-energised for the ensuing billing period – assume (t + 61) to (t + 120) with no advance in meter confirmed at scheduled reading at (t + 120), the *MPRN Level Invoice Item Detail* supporting the supplier invoice to supplier at (t + 135) would be portrayed as follows (relevant details only included):

Invoice No	Item No	Adjustment Reference	Billing Date From	Billing Date To	24hr kWh Consumption	24h Energy Charge	Standing Charge	Net Amount	Key Invoice Item to Line
7	1014975		t + 61	t+120	0	0.00	6.73	6.73	Billing to Supplier at (t + 135) for billing period (t + 61) to (t + 120)

6.10 Tariff Price Changes

Scenario

CER approve a revised schedule of DUoS charges for 2005 to take effect from the 1st January. Demonstrate the impact of this in terms of the MPRN Level Invoice Item Detail that will be forwarded to suppliers. Assume a 5% increase in both standing and energy consumption charges. We will use a DG1 MPRN with a 24hr meter to demonstrate this scenario

See Figure 6.10 for detailed representation of this scenario

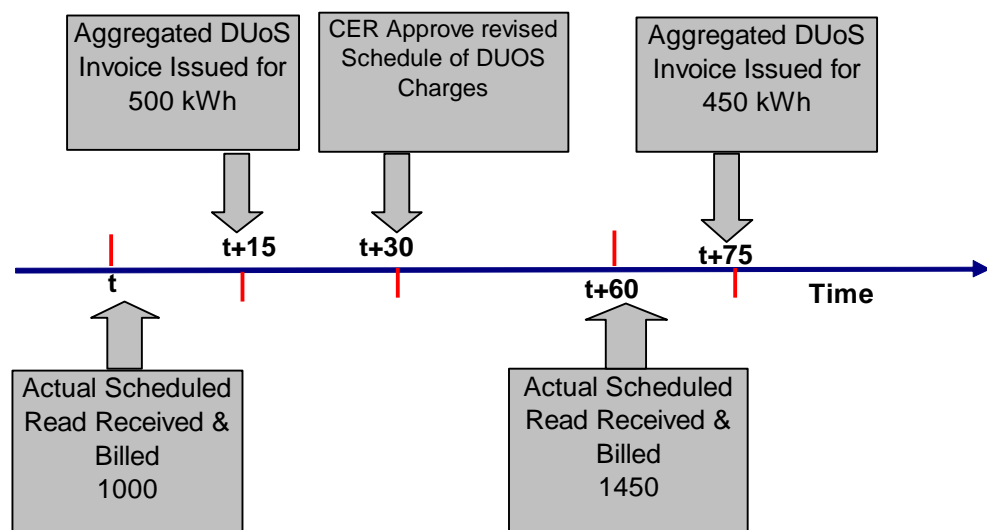


Figure 6.10 Tariff Price Changes

Consequences

- Price increase at (t + 30) necessitates time slicing of standing and energy consumption charges for scheduled billing at (t + 60). Let us assume that the system estimates energy consumption of 250 kWh for period (t) to (t +30) and 200 kWh for period (t + 31) to (t + 60). The standard estimation algorithm is used for this purpose.
- Will result in one invoice line on the supplier invoice at (t + 75) reflecting this time slicing

The *MPRN Level Invoice Item Detail* supporting the supplier invoice at (t + 75) will be portrayed as follows (relevant details only included):

Invoice No	Item No	Adjustment Reference	Billing Date From	Billing Date To	24hr kWh Consumption	24h Energy Charge	Standing Charge	Net Amount	Key to Invoice Line Item
5	994648		t	t+ 60	450	12.84	6.89	19.73	Billing to Supplier at (t + 75) for billing period (t) to (t + 60). Energy charge is calculated by applying old price to 250 kWh and new price to 200 kWh. Standing charges are applied through time slicing the billing period.

The 'Key to Invoice Line Item' column is not included in the *MPRN Invoice Item Detail*. It is included here to facilitate reader understanding through provision of the reason for the invoice line item. Actual dates will of course be reflected (YYYYMMDD) in the *MPRN Level Invoice Item Detail*.

7. Field Descriptions of *MPRN Level Invoice Item Detail* Documentation

7.1 General

The *MPRN Level Invoice Item Detail* is produced as part of the twice monthly supplier invoicing process and provides detail of all charges applied at individual MPRN level.

A sample printout of this document is included in Appendix 1. This document has been specially formatted with field headings to facilitate detailed portrayal of the data contained therein. The actual file forwarded to suppliers via SFTS / EE is a flat file format, with data definitions and formats specified in the document titled *DUoS, Transaction and PSO Payment Process – MOIP April 2004* and presented to the Market Implementation Group in April 2004.

The following is a description of the information contained in each field including its derivation:

7.2 Header Fields

Header information is provided for each flat file forwarded to suppliers

Field 1 – Segment ID

This is an identifier to categorise the level in the file e.g. 1 = Header record (1 record only)

Field 2 – Invoice Number

This is the unique number that references the Invoice/Credit Note information being provided

Field 3 – Sender ID

This is the unique identifier of the Market Participant sending the flat file. For ESB Networks, this is DSO (Distribution System Operator).

Field 4 – Recipient ID

This is the unique identifier of the Market Participant receiving the flat file. This will correspond with the Supplier ID for the Supplier registered on the MPRN.

Field 5 – Time Stamp

This is a time and date stamp indicating the time and date that the file was created. This is defined as:

- YYYYMMDDHHMMSS

7.3 Item Detail Fields

Field 6 – Segment ID

This is an identifier to categorise the level in the file e.g. 2 = Item Detail Record (1..n records)

Field 7 – Invoice Number

This is the unique identifier of the Invoice/Credit Note to which the item relates.

Field 8 – Invoice Item Number

This is an unique reference to a line Item on a file. This number is used to reference which item is being disputed in a 507 message.

Field 9 – MPRN

This is the unique identifying reference number for the Meter Point. All elements of the MPRN will be provided.

Field 10 – Adjustment Reference

This is only displayed where a billing/invoicing reversal is being made for an invoice item included in a previous Supplier invoice. The adjustment reference is the Invoice Item Number of the original invoice item.

Field 11 – Invoice Type

Unique system identifier to identify the type of invoice item. The following types have been provided:

- 1S New Charge – Sequential Bill e.g. Scheduled or final billing / invoicing of any MPRN
- 2S Adjustment Credit – Reversal of Sequential Bill. Full reversal of any scheduled or final billing / invoicing of any MPRN
- 3S Adjustment Debit – Re-billing / invoicing of any sequential bill
- 2C Adjustment Credit – Manual billing credit
- 2D Adjustment Credit – Reversal of manual billing debit
- 3C Adjustment Debit – Reversal of manual billing credit
- 3D Adjustment Debit – manual billing debit

Field 12 – DUoS Group

DUoS Group tariff applicable to the MPRN provided in the invoice item

Field 13 – Billing Date From

The date from which the billing period for the invoice item became effective.

Field 14 – Billing Date To

The date to which the billing period for the invoice item was effective

Field 15 – Day kWh Consumption (08.00 – 23.00)

The Day rate energy consumption, if applicable, recorded in kWh that was determined for the current billing /invoicing period of the MPRN provided in the invoice item charge. For NQH MPRNs, this would be determined by the system by deducting the last meter reading that was subject to a billing / invoicing process from the current scheduled meter reading or any reading provided to facilitate termination of any contract. Multipliers are applied where applicable. Where multiple day/night registers are encountered at any MPRN, the total day consumption is determined by aggregating the derived consumption determined for each day register for the billing period. For QH MPRNs the day consumption for the period is determined based on all the 15-minute profile meter readings applicable to the billing period.

Field 16 – Day Energy Charge

Total day kWh consumption as determined in Field 15 multiplied by the associated DUoS tariff rate applicable for the billing period for the MPRN. Proration will apply where different tariff rates are applicable for the billing period.

Field 17 – Night kWh Consumption (23.00 – 08.00)

The night rate energy consumption, if applicable, recorded in kWh that was determined for the current billing /invoicing of the MPRN provided in the invoice item charge. For

NQH MPRNs, this would be determined by the system by deducting the last meter reading that was subject to a billing / invoicing process from the current scheduled meter reading or any reading provided to facilitate termination of any contract. Multipliers are applied where applicable. Where multiple day / night registers are encountered at any MPRN, the total night consumption is determined by aggregating the derived consumption determined for each night register for the billing period. For QH MPRNs the night consumption for the period is determined based on all the 15-minute profile meter readings applicable to the billing period.

Field 18 – Night Energy Charge

Total night kWh consumption as determined in Field 17 multiplied by the associated DUoS tariff rate applicable for the billing period for the MPRN. Proration will apply where different tariff rates are applicable for the billing period.

Field 19 – 24 Hr kWh Consumption

The 24hr energy consumption, if applicable, in kWh that was determined for the current billing /invoicing period of the MPRN provided in the line item charge. For NQH MPRNs, this would be determined by the system by deducting the last meter reading that was subject to a billing / invoicing process from the current scheduled meter reading or any reading provided to facilitate termination of any contract. Multipliers are applied where applicable. Where multiple 24hr registers are encountered at any MPRN, the total 24hr kWh consumption is determined by aggregating the derived consumption determined for each 24hr register for the billing period.

Field 20 – 24 Hr Energy Charge

Total 24hr kWh consumption as determined in Field 19 multiplied by the associated DUoS tariff rate applicable for the billing period for the MPRN. Proration will apply where different tariff rates are applicable for the billing period.

Field 21 – Standing Charge

This is the time based standing charge applicable to the MPRN for the billing period. It is the published annualised charge pro-rated to reflect the charge applicable to the number of days contained in the billing period and would be representative of the Billing Date From / Billing Date To dates of the invoice item detail (Fields 13 & 14). Where 24hr meters/registers and double tariff day/night meters / registers are installed at any NQH MPRN, the standing charge applicable to the 24hr meter is used for determination of standing charge for billing / invoicing purposes. Pro-ration will apply where tariff rate changes are applicable to the billing period or in respect of any event necessitating termination of contract. Thus any standing charge for any final billing to supplier in respect of a customer loss is representative of the number of days contained in the final billing period i.e. number of days between start day of current billing period and effective date of CoS.

Field 22 – Capacity Charge

Capacity charge for an MPRN is the agreed capacity (MIC) as per the connection agreement multiplied by the tariff rate/KVA for the applicable DUoS Group as published in the DUoS schedule of Distribution Use of System Charges. It is pro-rated on the same basis as the Standing Charge (Field 21). It does not include any penalty component.

Field 23 – Maximum Import Capacity

The MIC is the Maximum Import Capacity in kVA which has been agreed by the customer in the connection agreement with the DSO.

Field 24 – Max kVA

This is the recorded max kVA for the MPRN for the billing / invoicing period

The calculation for QH installations and NQH installations is described in Section 3 above.

Field 25 – MIC Surcharge

This is the penalty surcharge where a customer exceeds the agreed level of MIC.

Field 26 – Reactive Energy kVArh

Reactive consumption as measured at the meter point for the billing period both QH and NQH.

Field 27 – Power Factor Surcharge

This is a penalty for Low Power Factor (LPF). The LPF surcharge is described in Section 3 above.

Field 28 – Net Amount

This is the total of net charges (exclusive of VAT) that are applicable to each invoice item in respect of each MPRN.

Field 29 – Gross Amount

This is the gross amount, inclusive of VAT, in respect of all charges applicable to each invoice item in respect of each MPRN. The VAT amount is calculated during the Invoicing in SAP IS-U process as outlined in paragraph 5.8 of this document

Minor rounding differences can be anticipated between the total of the Gross Amount fields included in the invoice detail and the gross amount shown on the Supplier Invoice/Credit Note produced as part of the aggregated invoicing process in SAP IS-U. This gross amount is provided to facilitate the Supplier when raising designated disputes i.e. the Supplier withholds payment of the gross amount of an invoice item pending resolution of a designated dispute.

7.4 Footer Fields

These fields denote the end of the particular flat file provided and provides control information on the number of records and total amounts:

Field 30 – Segment ID

This is an identifier to categorise the level in the file e.g. 3 = Footer record (1 record only)

Field 31 – Total Records

This is the total number of line items in the file i.e. excluding the header and footer lines. This should equal the total number of records shown in the Summary by DUoS Group Report.

Field 32 – Control Total

This is a summation of all Net Amount charges shown on the detailed line items of the file. This should equal the total amount shown in the Summary by DUoS Group Report.