



Networks

ESB Networks Ltd Basis of Charges for Connection to the Distribution System

Revision Date: 14/01/20010

Revision No.: 1

Document No: DOC-10129-AXQ

Issued by: ESB Networks Ltd

Approved by : CER

Effective Date: 08/02/2010

Commercial and Customer
Asset Management
ESB Networks Ltd.

Table of Contents

| | | |
|------------|---|-----------|
| 1.0 | ABOUT THIS DOCUMENT | 3 |
| 2.0 | SCOPE | 3 |
| 3.0 | DEFINITIONS OF TERMS USED IN THIS DOCUMENT | 4 |
| 4.0 | PRINCIPLES OF THE CONNECTION CHARGES | 6 |
| 5.0 | CONNECTION CHARGE CALCULATION | 7 |
| 5.1 | Standard MIC Charge | 7 |
| 5.2 | Network Charges | 7 |
| 5.3 | Trenching Charge | 8 |
| 5.4 | Exceptional Costs | 8 |
| 5.5 | Shared Network Charge | 8 |
| 6.0 | APPLICATION OF CONNECTION CHARGES | 9 |
| 6.1 | Domestic Non-Scheme Connection Charges | 9 |
| 6.2 | Housing Scheme Connection Charges | 11 |
| 6.3 | Business Connection Charges | 12 |
| 6.3.1 | Single Business | 12 |
| 6.3.2 | Increases in Capacity | 13 |
| 6.3.3 | Reductions in Capacity | 13 |
| 6.3.3a | MIC Reductions - Stranded Asset Cost Recovery Moratorium | 14 |
| 6.3.4 | Multi-Business Development | 14 |
| 6.3.5 | Mixed Development | 15 |
| 6.3.6 | Substation Sites and Buildings | 16 |
| 6.3.7 | Connections to the Distribution System at 110 kV | 17 |
| 6.3.8 | Connections to the Distribution System at 38 kV where standard charges do not apply | 17 |
| 6.4 | SITUATIONS WHERE STANDARD CHARGES DO NOT APPLY | 18 |
| 6.4.1 | Connections for construction works (Temporary connections) | 18 |
| 6.4.2 | Wasting Assets | 18 |
| 6.4.3 | Disturbing Loads | 18 |
| 6.4.4 | Convenience Connections | 19 |
| 6.4.5 | Enforced High-Cost Connections | 19 |
| 6.4.6 | Specific User Requirements | 19 |
| 6.4.7 | Remote Terrain | 20 |
| 6.4.8 | Night Storage Heating | 20 |
| 6.4.9 | Standby Connection at MV | 20 |
| 6.4.10 | Automatic Changeover | 20 |
| 7.0 | REVIEW ARRANGEMENTS | 20 |
| | APPENDIX 1: REFUNDS IN RESPECT OF SHARED NETWORK | 22 |

1.0 About This Document

This document has the following purpose:

- It sets out the basis on which charges for connection to the Distribution System are calculated and applied by ESB Networks Ltd. in its role as the Distribution System Operator. Charges for connection to the Distribution System are payable by individual business and domestic customers and by developers. CER approval of these charges is required under the Electricity Regulation Act and the Distribution System Operator licence.
- Charges in respect of infrastructure for large multi-customer developments such as business parks are determined according to different rules and are dealt with in the Business Parks Policy document.

2.0 Scope

This document describes the basis of calculating connection charges for users of the Distribution System.

It does not list the current connection charges, describe the connection process or list the Distribution Use of System tariffs. This information is contained in the following documents which can be found on ESB Networks website (<http://www.esb.ie/esbnetworks/>).

| No. | Document Title | Source |
|-----|---|--------|
| 1 | ESB Networks Statement of Charges | DSO |
| 2 | Guide to the Process for Connection to the Distribution System | DSO |
| 3 | Rules for application of Distribution Use of System Tariff Groups | DSO |
| 4 | Distribution System Security and Planning Standards (demand customers only) | DSO |
| 5 | Business Parks Policy. | DSO |

3.0 Definitions of Terms Used in This Document

In general, the definitions of terms used in this document are the same as in the Distribution Connection Agreements

The definitions of terms particular to this document are given below.

| Term | Definition |
|------------------------------------|---|
| Network Station | Distribution Transformer Substation, usually with a primary voltage of 38 kV or 110 kV and an MV secondary voltage. The secondary is connected in to the local MV network. |
| Switching Station | In the context of this document, a switching substation connected at 38 kV or 110 kV primary voltage. |
| Common Costs | Common costs of a substation consist of the costs of the site, the building plus the equipment, which are shared by all users connected to the substation. Thus the costs of those items of electrical equipment through which current drawn by every user connected to the station must pass are included in the common costs. |
| Shared Network | Electrical Network (e.g. common network station equipment/site, transmission network connecting that station to the system and any associated remote end station works) used to connect more than one of the cluster generators to the existing network. This excludes transmission/distribution network downstream of the network station. |
| Stranded Asset | Any asset constructed to cater for the existing MIC that is now deemed not necessary for the reduced MIC. |
| Dedicated Connection Asset | Electrical network (lines, cables, switchgear etc.) used to connect a single user to the transmission or distribution system. The connection asset is specific to the user and does not form part of the connection to any other user. |
| Distribution System Operator (DSO) | ESB in its role as Distribution System Operator. |

| Term | Definition |
|---|--|
| Least-cost technically-acceptable solution | The term that describes the cheapest connection method that meets the requirements in the Planning and Security Standards and the Distribution Code |
| Maximum Export Capacity (MEC) | The amount of electricity referred to as being the “Maximum Export Capacity” in the Connection Agreement. |
| Maximum Import Capacity (MIC) | The amount of electricity referred to as being the “Maximum Import Capacity” in the Connection Agreement. |
| Disturbing Load | Electrical load that causes voltage disturbance or waveform distortion on networks affecting voltage quality for other users of the distribution system. |
| Distribution System Security and Planning Standards (demand customers only) | A document submitted by DSO to CER for approval under the terms of its licence. The document outlines the DSO’s approach to the development of network and how the connection of new loads and embedded generators to the Distribution System is assessed. |
| Non-Scheme Connection | An individual domestic connection which is not applied for as part of a housing or mixed development. |
| Preliminary Design Phase (HV Projects) | The Preliminary Design Phase of a project provides for an initial high level design and a calculation of estimated project costs. |
| Detailed Design Phase (HV Projects) | The Detailed Design Phase of a project provides for a detailed project design and detailed project costs. |
| Construction Phase (HV Projects) | The Construction Phase of a project follows offer acceptance by the customer and payment of relevant connection charges. |

4.0 Principles of the Connection Charges

Equality of Treatment

Under the Electricity Regulation Act, 1999, ESB has the following obligation:

“Where providing for use of the transmission or distribution system or where offering terms for the carrying out of works for the purpose of connection to the transmission or distribution system of the Board, the Board shall not discriminate unfairly as between any persons or classes of persons.”

In the context of connection charges, this can be interpreted as follows:

Customers with similar capacity requirements should bear similar charges subject to considerations of economic efficiency.

Economic Efficiency

For reasons of economic efficiency, the method of connection to the network is the Least Cost Technically Acceptable Solution (LCTAS).

The LCTAS is defined as the solution which is technically acceptable and which results in the least cost being incurred by the DSO in implementing the solution and which facilitates the long term development of the electricity network in the area. The process of choosing the LCTAS is specific to each case and is detailed in the Distribution System Security and Planning Standards document.

Any additional costs incurred by ESB Networks in providing a connection, which is deemed by ESB Network to be over and above the LCTAS, are borne in full by the customer or developer.

There are situations where standard charges are not applicable and where connection charges are calculated on a case by case basis.

Examples of cases where costs above the least-cost technically-acceptable solution arise are:

- Disturbing Loads installed by the customer. These can effectively require an increased capacity over and above the nominal capacity (MIC).
- Requests by the customer to use underground cable where overhead line would normally be used.
- Requests by the customer to site a substation required for connection in a non-optimal location requiring extra construction costs or extra telecoms and other costs.
- Higher security than required under the Distribution Code.

Simplicity

Any system of connection charges should be as simple as possible. This has a number of advantages:

- Faster quotations for customers.
- Easy for the customer to understand
- Reduced administrative overheads
- Reduction in auditing overhead

5.0 Connection Charge Calculation

The connection charge for a customer is made up of the following:

- Standard MIC Charge
- Network Charge
- Trenching Charge
- Exceptional charge
- Shared Network Charge

5.1 Standard MIC Charge

Standard charges are intended to recover part of the DSO's costs in providing new connections. The method for calculating standard charges is as follows:

1. Establish the range of least cost technically acceptable connection methods
2. For each of these valid connection methods calculate
 - Connection Asset Charge. This is 50% of the cost of the dedicated connection asset. It includes the cost of installing metering, cables/lines and DSO equipment in the user's terminal station necessary to effect the connection.
 - Capacity Charge (Only for Business Customers). This is an average charge per kVA for reinforcement of the existing system. It consists of
 - o 50% of the cost of the customer's share of the capacity of the MV/LV substation.
 - o 25% of the average cost of network reinforcement. (Only applies for business customers with an MIC of 500 kVA or greater)
3. Determine the proportion of actual connections accounted for by each of the valid connection methods, i.e. the weighting factors.
4. Calculate the standard charge as a weighted average of the charges for the set of valid connection methods.

5.2 Network Charges

For standard 12kVA and enhanced 16kVA domestic one-off connections and housing schemes the standard MIC charge includes MV network costs within defined distance criteria, outside these criteria additional MV network charges apply based on standard MV network charges.

For 20kVA and 29kVA special connections to domestic customers the standard MIC charge does not include network charges. Where applicable standard network charges per metre are used.

For business customers and domestic customers with apartment connections the standard MIC charge does not include network charges, where applicable standard network charges per metre are used.

5.3 Trenching Charge

The customer is required to provide all trenching free of charge to ESB both inside and outside the site (except for single urban domestic dwellings, see below). For the avoidance of doubt, trenching on the customer site is always the responsibility of the customer.

Where however at the request of the customer ESB arranges to have the trenching outside of the customer site carried out by a contractor, the cost of the trenching is included in the quotation and is based on either a firm quotation from the contractor or standard trenching charges as listed in ESB Networks Statement of Charges document..

For single urban domestic dwellings the standard charge includes the cost of up to 50m of trenching (excavation, ducting and reinstatement) from the dwelling. Once again for clarity this does not include trenching required on the customer site.

5.4 Exceptional Costs

These costs include

- High Trenching Costs

Where the actual trenching charge is over 110% of the standard trenching charge then the customer will be charged the full contractor trenching charge. (This will only arise where ESB arrange for trenching on behalf of the customer and the customer is quoted using standard trenching charges)

- Additional Charges

Local authority road opening charges and any wayleave, easement or other costs imposed by third parties are charged in full.

- Supplementary Charges (Business Only)

Supplementary charges apply to business customers where the length of the feeding network is exceptional. This is because of the extra cost of providing capacity on these networks.

5.5 Shared Network Charge

A shared network charge / refund will apply in cases where a connection to a new customer makes use of the connection asset of an existing customer, see appendix 1.

6.0 Application of Connection Charges

6.1 Domestic Non-Scheme Connection Charges

The total connection charge for domestic non-scheme customers is the sum of the following five charges:

1) Standard charge (available for the following connection types)

- 12kVA Family Apartment new connection
- 12kVA new connection
- 12kVA to 16kVA upgrade
- 16kVA new connection
- 20kVA new connection
- 29kVA new connection

There are no standard charges for domestic upgrades to MIC >16kVA, charges are calculated using 50% of design costs.

The current standard charges for the above connection types are listed in the ESB Networks Statement of Charges document and apply to:

- 12kVA additional family apartment connections where an existing 12kVA or 16kVA connection exists in the same dwelling.
- 12kVA and 16kVA rural connections located within 500m of existing MV overhead network, measured as crow flies.
- 12kVA and 16kVA urban connections within 50m of LV three phase network, measured along route length to the nearest connection point.
- 20kVA and 29kVA urban or rural domestic special connections regardless of location.

2) MV Network Charges (additional network charges may apply as follows)

- Rural 12kVA and 16kVA domestic connections outside distance criteria

Up to 500m of MV network is included in the standard charge for 12kVA and 16kVA rural connections in (1) above. For any MV network between 500m and 1 km from the connection point, a 50% allowance is included in the standard MV network per meter charge listed in the Current ESB Networks Statement of Charges Document

No allowance applies to MV network beyond 1km from the connection point, i.e. charge is twice the standard MV charge per metre.

- 20kVA and 29kVA special connections

The standard charge for 20kVA and 29kVA connections listed in (1) above does not include any MV network charge. Where MV network is required, standard MV network charges per metre are added. For any MV network up to 1km from the connection, a 50% allowance is included in the standard MV network per meter charge listed in the Current ESB Networks Statement of Charges Document. No allowance applies to MV network beyond 1km from the connection point, i.e. charge is twice the standard MV charge per metre.

- 3) Trenching Charges (see section 5.3)
- 4) Exceptional Charges (see section 5.4)
- 5) Shared Network Charges (see section 5.5)

Design Costs

There are no standard charges for 3kVA non-dwelling connections. Charges are based on 50% of design costs. Any MV network required up to 1km from the connection point includes a 50% allowance. No allowance applies to MV network beyond 1km from the connection point i.e. charge is 100% of the cost of the MV network.

Notes:

Standard kVA capacities

Domestic connections are only available for the standard capacities of 3kVA, 12kVA, 16kVA, 20kVA and 29kVA. Connections with an MIC of 30 kVA or greater are treated as business connections. 3kVA connections are not suitable for dwellings.

Special connections

Special connections of capacity 20kVA or 29kVA whether single phase or three phase are subject to a minimum charge equal to that of the enhanced 16kVA connection.

Family Apartments

A 12kVA Family Apartment connection is provided to cater for secondary metering of an extension or sub-division of an existing domestic dwelling for family use. It is electrically the same as a two-apartment development without the requirement for a landlord connection and shares the same service.

The following criteria apply:

- Only one Family Apartment connection per dwelling.
- For family use only, e.g. aged family member, not for sub-letting.
- Proof of planning permission as a Family Apartment from the relevant Local Authority may be requested. Where planning permission is not required, ESB Networks may require evidence of family use.
- The main dwelling and Family Apartment should be internally connected by means of an interconnecting door.
- The existing service must be adequate to cater for the main dwelling load as well as the proposed Family Apartment.

Where any of the criteria above are not met, the new connection may be dealt with as a standard 12kVA house or apartment development.

The current Family Apartment standard charge is listed in ESB Networks Statement of Charges document.

6.2 Housing Scheme Connection Charges

The total connection charge for domestic housing scheme customers is the sum of the following five charges:

1) Standard charge

Housing Schemes (20 or more houses)

The standard charge is based on the average length of roadway per house.

Small Domestic Developments (2-19 houses)

For developments up to 8 houses a single charge applies. For developments from 9 to 19 houses the charge depends on the average length of roadway per house.

These standard charges are quoted in the current ESB Networks Statement of Charges Document.

2) Network Charges

The standard charges in (1) above include the costs of up to 500m of MV network measured from the nearest housing scheme MV substation. Where more than 500m of MV network is required, additional network charges are applied as follows:

- Between 500m and 1 km from a housing scheme MV substation, a 50% allowance is included in the standard MV network charges.
- No allowances apply to network more than 1 km from a housing scheme MV substation, i.e. charge is twice the standard MV network charge.

3) Trenching Charges (see section 5.3)

4) Exceptional Charges (see section 5.4)

5) Shared Network Charges (see section 5.5)

Design Costs

The standard charges for housing schemes and small domestic developments assume the following conditions.

- Separate service per house.
- Connection capacity of 12kVA.
- For small domestic developments of between two and four houses the average length of roadway per house is in the range of 1 to 50 metres.
- For developments with five or more houses the average length of roadway per house is in the range of 1 to 14 metres.
- The development is completed within 3 years of payment of connection charges.

Where these conditions do not hold then the developer should be quoted on the basis of 50 % of design costs.

No allowances apply to MV network more than 1 km from a housing scheme MV substation, i.e. charge is twice the standard MV network charge.

6.3 Business Connection Charges

6.3.1 Single Business

The connection charge for business customers is the sum of:

- Standard Charge. The standard charge is based on the customer MIC, refer to ESB Networks Statement of Charges document.
- MV/HV Network Charge. See table below.

| | | MV/HV Network Charge | |
|----------------|-------------------------------------|---|---|
| | | Customer MIC <5,000 kVA | Customer MIC ≥5,000 kVA |
| New MV Network | | Standard MV network charge per metre | |
| New HV Network | Connection via new HV/MV substation | No HV network charge | Charge 50% of attributable cost of new HV network, where attributable cost for new connection is (customer MIC/Firm capacity of substation)*Cost of new HV network. For increases in capacity the attributable cost is (Increase in MIC/Firm capacity of substation)*Cost of new HV network) ¹ |
| | Connection at HV | Charge 50% of the cost of new HV network. Where connection is via a new HV substation the customer is also charged 50% of attributable cost of new HV network to feed that substation where attributable cost is (Customer MIC/Firm capacity of substation)*Cost of new HV network. | |

- Trenching Charges. The customer is required to provide all trenching free of charge to ESB both inside and outside the site. Where at the request of the customer ESB arranges to have the trenching work outside the customer site carried out by a contractor, the cost of the trenching is included in the quotation. Trenching on the customer site is always the responsibility of the customer. Current standard trenching charges are quoted in the Statement of Charges document.
- Exceptional Charges. Supplementary charges apply to business customers where the length of the feeding network is very long. This is because of the extra cost of providing capacity on these networks. Specifically they apply to
 - MV customers, with a maximum import capacity in excess of 500kVA and located greater than 7km from a 38kV station. See the current Statement of Charges Document.

¹ For the purposes of calculating HV network charges, any increases in MIC within 12 months of the requirement to construct the HV network will be taken as the relevant increase in MIC

- 38kV customers, with a maximum import capacity in excess of 2,500kVA and connected to circuits longer than 18km between 110kV stations. See the current Statement of Charges Document. Other exceptional charges are included such as high trenching costs, easement costs etc, see section 5.4
- Shared Network Charges / Refunds. A shared network charge / refund may apply in cases where a connection to a new customer makes use of the connection asset of an existing customer.

The shared network refund is paid to the customer who accepted the connection agreement / terms for the original connection. The shared network charge is paid by the customer who accepts the connection agreement / terms for the new connection.

The value of the shared network charge / refund depends on:

- Use of connection asset made by the customers. For shared MV/HV lines or cables this is based on the relative (import or export) capacities of the customers.
- The capital contribution originally charged in respect of the shared asset excluding any standard charge.

Details for eligibility and calculation of refunds in respect of shared network are given in Appendix 1 of this document.

Due to their interim nature, temporary connections do not provide permanent benefits to the customers availing of them. However, there are certain situations where the location and size of a connection have meant that the option of a temporary connection has conferred a substantial benefit. In these situations refunds may apply.

6.3.2 Increases in Capacity

The charge for an increase in MIC is equal to the standard charge for the proposed capacity less that corresponding to the existing capacity. In cases where new MV/HV network is required, there is an additional charge which is calculated in the same way as for a new connection, as outlined in Section 6.3.1.

New HV network may be required where either the increased MIC requires a new HV/MV substation or where the increased MIC requires a connection at HV. Any such HV network charge is additional to any MV network charge or increased capacity charge.

6.3.3 Reductions in Capacity

A charge may be made for a reduction in MIC depending on whether stranded assets remain following the reduction in MIC. If there are no stranded assets then the customer can be offered a revised Connection Agreement for the reduced MIC level free of capital charge. If there are stranded assets then the capital contribution for a reduced MIC level is the standard charge for the existing MIC level less the standard charge for the reduced MIC level less an allowance for DUoS paid since connection of the existing MIC.

Capital Contribution = [a-b-c]

a = Standard Connection Charge for the existing MIC level

b = Standard Connection Charge for the reduced MIC level

c = Allowances Recovered via DUoS

Allowances recovered are $[(a-b)*n/20]$ where **n** is the number of years, or part of a year, that the customer was on the existing MIC level.

6.3.3a MIC Reductions – Moratorium on Recovery of Stranded Asset Costs

A moratorium on the application of stranded asset¹ charges for MIC reductions of up to 200kVA will be available for a temporary period up to the end of the year 2012. Standard policy for MIC reductions as set out in 6.3.3 above will apply after that date. Under this policy, business customers may avail of MIC reductions of up to 200kVA free of any stranded asset charge and within a period of two years they may revert to the pre-reduction MIC - also free of charge.

The following conditions apply on eligibility under this policy:

1. The policy applies to requests for MIC reductions made within the moratorium period, from the date of approval of this document to the end of 2012.
2. Eligibility is limited to connection points (MPRNs) that were operational prior to the start of the moratorium.
3. Only one reduction and one upward adjustment may be processed for each connection point.
4. Requests for MIC reductions must be at the same voltage level, i.e. MV to LV is not covered.
5. Reverting to the pre-reduction MIC is free of charge if effected within two years of the MIC being reduced - provided MIC reinstatement may be made without the need to up-rate or alter the feeding networks. If the capacity is no longer available then standard policy for MIC increases will apply².

¹Determination of whether stranded assets remain is based on whether any assets that were installed to cater for the existing MIC are required for the new reduced MIC. If fewer or smaller assets are required for the reduced MIC, then these assets are deemed to be stranded.

²Determination of available network capacity will be made by the DSO at time of application for reinstatement of MIC.

6.3.4 Multi-Business Development**Centralised Metering**

Where the metering for all the business customers is centralised at a single metering location the total connection charge for a multi-business development is the sum of:

- Standard charge for total MIC
For business units the total MIC is the sum of the individual MIC's at the common metering position (i.e. diversity is not taken into account).

- 50% of metering costs
- Additional charges
MV / HV Network Charges, Trenching Charges, Exceptional Charges and Shared Network Charges are added as for a Single Business in section 6.3.1.

Example

Ten Business Units: 15 kVA 3 phase connections. Metering for all the units centralised in one room.

Sum MIC = 10 x 15 kVA = 150 kVA

Connection Charge = Standard Charge for 150 kVA 3 phase Connection + 50% of Metering Costs + MV / HV Network Charges + Trenching Charges + Exceptional Charges + Shared Network Charges

Non-Centralised Metering

Where the metering for all the business customers is not centralised the total connection charge for a multi-business development is simply the sum of connection charges for the individual business customers.

6.3.5 Mixed Development

A mixed development is defined as a development which consists of a mixture of domestic and business customers. An apartment complex with a landlord connection is treated as a mixed development.

Centralised Metering

Where the metering for all the domestic and business customers is centralised at a single metering location (i.e. in one room) the connection charge for the mixed development is the sum of

- Standard Charge for Total MIC
For commercial units the total MIC is the sum of the individual MIC's at the common metering position (i.e. diversity is not taken into account).
For domestic units the total MIC is the sum of the design MIC's at the common metering position (i.e. diversity is taken into account).
- 50% of Metering Costs
- Additional Charges
MV / HV Network Charges, Trenching Charges, Exceptional Charges and Shared Network Charges are added as for a Single Business in section 6.3.1.

Example

Three Business Units: (Two Shops 15 kVA, One Business 35kVA).

Three Apartments & Landlord: (Apartment 12kVA, Landlord 15kVA).
Metering for all the units is centralised in one room.

Sum Business MIC = 15 kVA + 15 kVA + 35 kVA = 65 kVA

Sum Apartments & Landlord MIC = 12 kVA + 2.5 kVA² + 2.5 kVA + 15kVA = 32 kVA

Total MIC = Sum Business MIC + Sum Apartment & Landlord MIC
= 65 kVA + 32 kVA = 97 kVA

Connection Charge = Standard Charge for 97 kVA Connection + 50% of Metering Costs + MV / HV Network Charge + Trenching Charges + Exceptional Charges + Shared Network Charges.

Non-Centralised Metering

Where the metering for all the domestic and business customers is not centralised the total connection charge for the mixed development is simply the sum of the connection charges for the individual business and domestic customers.

Apportionment of MV network charges in Mixed Developments

In a mixed development with a mixture of apartment / housing scheme / business connections the apportionment of MV network charges across the different quotations is made in the ratio of the MIC's for the particular phase of the development being quoted. For example, if the MV cable length required in a development phase is 1,000 metres and

Total Apartment MIC 200kVA

Total Housing Scheme MIC 300kVA

Total Business MIC 500kVA

Therefore apportion MV network costs in the ratio of 2:3:5, i.e. 200m for apartment, 300m for housing scheme and 500m for business quotation.

6.3.6 Substation Sites and Buildings

Users of the Distribution System to be connected at MV are required to provide either a terminal substation room or building, free of charge to ESB Networks, as part of the arrangements to accept a connection. Users of the Distribution System to be connected at 38kV or 110kV are required to provide a site free of charge to ESB Networks and to carry out specific civil works.

Users of the Distribution System to be connected at LV may be required to provide a substation room or building or a plinth for a free-standing 'unit' substation, free of charge to ESB Networks, depending on the MIC and the capacity available on the local network. These requirements are set out in the 'Distribution System Security and Planning Standards'.

In the case of a substation room or building, ESB Networks will provide a specification covering the dimensions and the construction details. Where a

² After Diversity Maximum Demand (ADMD) for 12kVA load is taken as 2.5kVA.

site is required, the specification for the dimensions and the civil works will be provided. The above details will be issued together with, or in advance, of the quotation for connection, as appropriate.

A substation facility provided by one user may subsequently be used to connect others.

In cases of a connection at 38 kV or 110 kV and where the MV system would benefit from a HV injection, a shared switching station may be built instead of a terminal station. In these cases, the user will only be required to bear a share of the common civil works costs.

In all of the above situations, it is a condition for connection that the substation building or site, as applicable, is legally transferred free of charge to ESB Networks.

Further details relating to substations are contained in the documents 'Conditions Governing Connection to the Distribution System' and 'The Distribution System Security and Planning Standards'.

6.3.7 Connections to the Distribution System at 110 kV

Demand Customers Connected at 110 kV

There are no standard charges for connection of demand customers at 110kV; charges for connection are based on costs determined following detailed design work on the project.

The three phases to the connection process are the Preliminary Design Phase, Detailed Design Phase and the Construction Phase. On completion of the Preliminary Design Phase, the estimated project cost is calculated and an initial payment of 10% is sought from the customer to cover the costs of the Preliminary Design Phase and the Detailed Design Phase yet to be undertaken. This payment is counted towards payment of the connection charge where the project proceeds. If the project does not proceed the 10% payment is refunded to the customer less any costs incurred on the project by ESB Networks. See "Guide to the Process for Connection of Demand Customers to the Distribution System".

On completion of the Detailed Design Phase the full project cost is calculated on the basis of a Least Cost Technically Acceptable (LCTA) connection and the customer is quoted 50% of this cost. Where costs over LCTA are incurred these are fully attributable to the customer.

The Construction Phase follows offer acceptance by the customer and payment of relevant connection charge.

Refunds

Refund Policy is the same as for other voltages, see Appendix 2.

6.3.8 Connections to the Distribution System at 38 kV where standard charges do not apply

Charges for connection to the Distribution System at 38kV are normally based on standard connection charges. In situations where standard charges do not apply, see section 6.4 below, the process for charging is the same as for Demand Customers Connected at 110kV and detailed in section 6.3.7 above. See also “Guide to the Process for Connection of Demand Customers to the Distribution System”.

Refunds

Refund Policy is the same as for other voltages, see Appendix 1 in this document.

6.4 Situations where Standard Charges do not apply

The situations where standard charges do not apply are listed here. In each case the connection charge is calculated as described in Section 5.0 above.

6.4.1 Connections for construction works (Temporary connections)

Builders connection for construction works

The connection charge for a builder’s connection is twice the Standard Charge for business connections and twice the associated network charge (on the basis that the standard connection charge includes a 50% allowance). The connection will be provided for a single purpose, e.g. construction; and will be terminated after a fixed period, i.e. re-use of connection will not be permitted.

Connections to domestic premises for completion of construction work on a single house

The connection charge for a builder’s connection to facilitate completion of construction work on a house is twice the Standard Charge for business connections and twice the associated network charge (on the basis that the standard connection charge includes a 50% allowance). When the permanent connection is required, on production of a valid completion certificate by an electrical contractor, a service cable will be provided to connect the temporary connection point to the permanent connection point at the house. The standard service alteration charge will apply for this work.

6.4.2 Wasting Assets

Wasting assets are typically sandpits and quarries etc., where the requirement for the connection will lapse when the asset has been exploited.

The connection charge is

- 150% of the Standard Charge, based on the MIC.

A bond may be required as security for decommissioning and reinstatement charges.

6.4.3 Disturbing Loads

The connection charge for a disturbing load is

1. The Standard Charge for the same size of normal load

plus

2. The difference between the design cost of the connection method required for the disturbing load and the design cost of the connection method which would have catered for a normal load of the same size

6.4.4 Convenience Connections

A convenience connection is one where the customer requests a more expensive connection method than the LCTAS, e.g. underground cable where an overhead line would normally be constructed, a more circuitous route to the connection point or a substation in a non-convenient location. In circumstances such as these the charge for connection is

1. The Standard Charge for the normal method of connection which would otherwise have applied, i.e. the LCTAS

plus

2. The difference between the design cost of the convenience connection method and the design cost of the normal method of connection as above

6.4.5 Enforced High-Cost Connections

Some connections cost more than the LCTAS because of restrictions imposed by third parties. These may be associated with safety considerations or local authority planning issues. Examples are connections in the vicinity of airports or high-amenity / scenic areas. Additional connection costs may arise because of a requirement for cabling and / or a more circuitous route to the point of connection. In situations such as these, the charge for connection is

1. The Standard Charge for the normal method of connection which would otherwise have applied, i.e. the LCTAS

plus

2. The difference between the design cost of the 'enforced' connection method and the design cost of the normal method of connection as above

6.4.6 Specific User Requirements

(a) Dedicated Connection Asset

In certain circumstances, a proposed user of the Distribution System to be connected at LV may request that no other connection be made in the future from the substation. In situations such as these the charge for connection is

1. The design cost of the dedicated asset(s)

plus

2. 50% of the design cost of all other elements of the job

(b) Work to be carried out at a particular time

If a customer requests that work associated with the connection be carried out at weekends or after normal working hours, the connection charge is calculated as follows:

1. The connection charge which would have applied in normal circumstances

plus

2. 100% of the additional costs arising from the above request

6.4.7 Remote Terrain

Connections may be required in remote areas, e.g. mountain tops for such as repeater stations, communications transmitters etc. In the majority of these situations, the connection asset is effectively 'dedicated', a ground-mounted substation is often necessary due to security of supply considerations and the transformer size may be mismatched to the MIC. In circumstances such as these, the charge for connection is

- 100% of the design cost

6.4.8 Night Storage Heating

The connection charge for a load which includes night storage heating is

1. The Standard Charge based on the load (MIC), excluding the NSH element(s), plus any additional charges that would normally apply, e.g. network charges, trenching (if applicable) etc.

plus

2. 100% of the difference between the gross design cost corresponding to the total load (including NSH load) and the gross design cost to cater for the normal load.

6.4.9 Standby Connection at MV

The Distribution System Security and Planning Standards requires that standby will be available (except in exceptional circumstances) for single point loads $\geq 1\text{MVA}$. Therefore, for a looped MIC $\geq 1\text{MVA}$ or a tail-fed MIC $< 1\text{MVA}$, the charge for connection is calculated in the normal way, i.e. Standard Charge plus network charges and any other charges (as applicable), e.g. trenching, shared network etc.

However, where the user requests a standby connection for an MIC $< 1\text{MVA}$, the connection charge is

1. The Standard Charge for the 'forward feed' method of connection, calculated in the normal way as above

plus

2. The design cost of the additional network required to provide the standby connection

6.4.10 Automatic Changeover

Automatic changeover is not normally provided to users of the Distribution System. In the event of a specific request for ACO, the matter should be referred to Commercial and Customer Section, Asset Management.

7.0 Review Arrangements

The charges described in this document are based on the construction costs of the least-cost technically-acceptable solution.

ESB's *Standard Costs* provide the installed cost for each item of electrical plant. The *Standard Costs* are revised on average once or twice per year using current material and labour costs.

The connection charges are recalculated and submitted to CER annually for their approval.

Appendix 1: Refunds in Respect of Shared Network

| | Description | Detail |
|---|--|--|
| 1 | Refund amount | <p><u>Permanent connections</u></p> $=MIC_2 * CC / (MIC_1 + MIC_2)$ <p><u>Temporary connections:</u></p> $=MIC_2 * CC * period / ((MIC_1 + MIC_2) * term)$ <p>where:</p> <p>MIC₁ = maximum import capacity in kVA of existing connection.</p> <p>MIC₂ = MIC of new connection</p> <p>CC = the capital contribution originally charged in respect of the shared asset excluding any standard charge.</p> <p>Period = The expected time the connection will be used (years) or 40, whichever is the shorter</p> <p>Term = term of connection agreement for original connection or 40, whichever is the shorter.</p> |
| 2 | <p>Charge in respect of the shared asset.</p> <p>(This is the charge made to the new user who is connecting to the original connection asset.)</p> | <ol style="list-style-type: none"> Where the percentage allowance applying to the original quotation was greater than or equal to that applying to the new quotation: - Equal to the refund amount. Where the percentage allowance applying to the original quotation was less than or equal to that applying to the new quotation: Equal to the refund amount normalised to the allowance applying to the new quotation. <p>This is included in the connection charges in respect of the second connection.</p> |

| | Description | Detail |
|---|-------------|---|
| 3 | Eligibility | <ol style="list-style-type: none">1. The interval from the date the original connection agreement/terms were paid to the date of the payment for the second connection must be no more than five years.2. The refund is paid to the individual or company who accepted the connection agreement/terms for the original connection.3. Refunds are made in respect of any connection where a connection agreement is in place.4. Refunds are made in respect of capital contributions not covered by a standard charge.5. Refunds of less than €70 or where the original contribution was less than €700 are not processed.6. Developers quoted under the Business Parks Policy are not eligible for a refund under any circumstances. |