Amendment Proposal to Central Networks West's Connection Charging Methodology Statement

Date of Issue: July 2009

For Approval by the Authority

1.0 Introduction

1.1 In accordance with our Licence Condition 13.2, Central Networks West has reviewed its Connection Charging Methodology and is therefore proposing a modification.

1.2 This Modification Proposal sets out Central Networks West's proposals to the following four areas of its charging statement: -

- Indicative connection charges in Section 7.
- Worked examples for connection scenarios in Section 7.
- Network/connection activities within tables A2 and A3 of Section 7 for Contestable and Non Contestable Works.
- Application of Assessment and Design fees in Section 7.

Issue Record

Issue Date	Issue No.	Author	Amendment Details
July 09	001	John Hill	

2.0 Modification to the Statement to revise Section 7 of the Connection Charging Methodology Statement

2.1 Reasons for a Modification

Central Networks believes that the revisions to Section 7 of the statement (and which are detailed below) will allow any person to make a reasonable estimate of the charges for which he would become liable in respect of the provision of a connection and thus provide a better customer service.

2.2 Indicative Charges

It is proposed that the indicative charges included in Section 7 – Schedules and Tables of Charges be amended as a consequence of increased labour and materials cost Central Networks is now experiencing. Such charges will be amended throughout Section 7

accordingly. These changes do not represent a change in our working method but rather simply changes in prices.

2.3 Worked Examples

We have been experiencing an increase in the number of connection requests for certain types of connection arrangements and we feel that customers would benefit by including such typical connection scenarios within the worked examples contained in Section 7 of the statement. It is proposed therefore to include an additional number of worked examples for various connection scenarios. We also believe that this will bring greater transparency to the statement. It should be noted that these additional examples do not represent a change in our working method. Details of such examples are listed below: -

- **One single phase low voltage connection – (example 1)**

  This example shows a single low voltage connection of service cable only, no longer than 20 metres in total from an existing mains cable, within three metres of the customer's boundary.

- **Four single phase low voltage connections requiring a low voltage mains extension – (example 2)**

  This example shows four single phase service low voltage connections. These have been jointed on the customer's own land to a new low voltage mains extension for which the point of connection is within the highway.

- **One three phase low voltage connection – (example 3)**

  This example shows a requirement for an upgrade of the existing pole mounted transformer to accommodate the new three phase service connection. Two cost examples are provided as follows: -

  1. Cost apportioned based on required load as upgrade is due to unavailable capacity on the existing transformer

  2. Full cost to customer as upgrade is due to affect of new motor starting characteristics and not because of unavailable capacity

- **Multi Service Distribution Board (MSDB) – (example 8)**

  This example shows a 10 way MSDB with all the ways being utilised for single phase services and the cable feeding the MSDB being laid in public highway for three metres.

The addition of these new examples predominantly relate to small low voltage schemes (1-4 plots) where we wish to provide more information for that particular type of customer.

The transformer upgrade example indicates two potential costs. This is due to an increase in the number of requests for connections where ground source heat pump equipment will be connected, which results in a requirement for a transformer upgrade in order to support the starting current for its motor.

The Multi-Service Distribution Board example has been included as there has been an increase in applications for this type of connection.

We propose to remove the example for a switched alternative connection for a generator up to 3000kVA as there has been no call for such a connection arrangement in the past and we therefore believe that such a connection scenario example adds little or no value to the statement.

2.4 Network/Connection Activities

Within the tables A2 and A3 of Section 7 there have been added a number of connections activities. Whilst such activities are not new and do not represent a change in our working method, we consider that including details of these activities together with associated costs will bring greater transparency to the statement.

2.5 Network Assessment and Design Fees

Within Section 7, the charges under the sub headings "Administration Fees" and "Non Contestable Design Approval Indicative Charges……." have been revised. A caveat has been added in these sections to reflect the fact that these charges will not be levied as an upfront charge, but will be included within the connection charge for the associated connection works. Whilst Central Networks West has never charged for the assessment and design works upfront, we believe that breaking down a connection charge into various elements will bring greater transparency to the charging methodology statement. Such wording we believe will make our position clear regarding the current statutory arrangements. These changes do not represent a change in our working method rather simply changes to the prices.

SECTION 7 – SCHEDULES AND TABLES OF CHARGES

Schedule A – Indicative Charges

A1 Indicative Charges

Application for Connection

There is normally no charge for network assessment and design associated with an initial application for connection to our network for the purpose of receiving an electricity supply. However we do reserve the right to charge a fee that reflects the additional work involved if your application is an initial application containing multiple criteria, e.g. more than one maximum load requirement; or your application is a follow up/amendment to the initial application and requires further assessment or design.

A network assessment and design fee will be charged for all applications to connect electricity generation plant and all enquiries that do not constitute formal applications for connection e.g. enquiries for an "outline price" or a "feasibility study". The network assessment and design fee would be assessed upon receipt of your application/enquiry.

All network assessment and design fees are payable in advance of any design work being carried out.

Factors Influencing Costs

When we design your connection there may be factors that are outside of our control and which can have an effect on the final price of the scheme. The following list is not intended to be exhaustive, rather provide an indication of elements that we will try to give consideration to at the design stage.

- Standards governing our Distribution System;
- The length of cable or line required from our existing Distribution System;
- The size of your demand in relation to available capacity of our existing Distribution System, including the age of the assets and the condition of our Distribution System;
- Whether any extensions or Reinforcement of our existing Distribution System is by underground cable or overhead lines;
- The type of ground requiring excavation; the type and extent of reinstatement necessary (including New Roads & Street Works Act requirements); the need for road crossings;

- The availability of Wayleaves/Easements for cables or lines including any Consents;

- The availability of suitable substation sites including any necessary Consents;

- The necessity for overtime working;

In some cases you may be able to negotiate with us to carry out some of those works (for example, trenching) yourself.

Other Circumstances Which our Charges May Take Into Account

The following is a list for illustrative purposes only of abnormal services which may be reflected in the connection charge where we are asked to provide the connection works:-

- Service termination where you fail to provide and/or install ducts to facilitate the installation of services into the premises;

- Progression of work required other than in an orderly fashion in accordance with normal engineering policies and practices thus imposing additional costs;

- Transformer/substation sites not provided to us in suitable locations at normal prices or rents, taking account both of cable access and access by personnel;

- Multiple occupancy premises where the developer fails to provide all necessary civil work including ducts, access ways, chases and covers etc;

- Loads with abnormal characteristics which affect the security and standard of service on the Distribution System, for example arc welders and large motors. We may ask you to pay additional costs which could not have reasonably been foreseen at the time of providing a quotation. You would be advised as soon as they became apparent and in any event at the end of the construction period of any additional cost incurred in providing the connection.

Administration Fees

- Network assessment and design fees if applicable would be assessed upon receipt of your application/enquiry and are detailed in item A3 – Non Contestable Indicative Charges below. Please note that an assessment and design charge will be included within your connection charge for the associated connections works. Whilst such charges are not levied if you do not proceed with your connection offer, this may change in the future.

- Providing quotations and amending Connection Agreements to permit a reduction in Agreed Supply Capacity during the initial ("Agreement") period.

The minimum charge is: -

Low Voltage - £150
High Voltage - £210

A2 Items of Significant Cost Required for Connection or Reinforcement

The following table represents a range of indicative charges for typical activities associated with the provision of new connections or associated network reinforcement. The actual cost will vary depending upon the specific details of the scheme.

You should assume that all civil works on the site are your responsibility unless otherwise indicated and that all costs are exclusive of VAT.

Activity	Description	Costs
Low Voltage service line and terminations	Single phase 100 amp connection (1 to 4 plots) (10m in footpath) (10m on-site) Three phase 100 amp Connection (10m in footpath) (10m on-site) Industrial/Commercial heavy duty connection up to 275 KVA (10 mtr in footpath) (10mtr on-site)	 £1,803 £1,059 £2,216 £1,613 £3,479 £3,288
Extension of Low Voltage mains and terminations	Section of main laid in good ground conditions, inc. excavation & reinstatement Section of main laid in typical tarmac footpath, inc. excavation & reinstatement	£78 per metre (minimum charge £2500) £154 per metre (minimum charge £2500)

Extension of High Voltage mains and terminations	Overhead line extensions	£51 per metre (minimum charge £5500)
	Underground Cable section of main laid in typical tarmac footpath, inc. excavation & reinstatement	£131 per metre (minimum charge £4000)
	Additional 11kV Circuit Breaker at an existing Primary Substation, excluding any civil works	£44,821
Activity	**Description**	**Costs**
New High Voltage substation for Domestic applications.	50 KVA Pad mount in Rural location inc termination and connection to HV network	£20,383 *(Exc. substation housing)*
	100 KVA Pad mount in Rural location inc termination and connection to HV network	£24,685 *(Exc. substation housing)*
	100 KVA Pad mount in Urban location inc termination and connection to HV	£26,568
New High Voltage substation	network, including housing	£17,407
	200kVA Pole transformer on new pole	£47,800
	315 KVA Package Substation. inc. Plinth & substation housing and connection to HV network	

New High Voltage substation for Commercial applications.	Standard 500KVA Ring-main unit with ACB and associated Large LV metering unit. inc. Plinth & GRP housing and connection to HV network 1000kVA package substation with ACB and associated large LV metering unit, including plinth, GRP housing and connection to HV network	£42,966 £49,593

Activity	Description	Costs
New High Voltage substation for Commercial applications.	Standard TLF operated Ring-main unit with associated HV metering unit including connection to HV network Relay operated ring main unit and associated HV metering unit, for supplies over 1MVA and up to 7.6MVA, including connection to HV network	£22,944 £26,144
For projects at 33kV and above it is difficult to provide accurate guidance because the individual nature and variable complexity of the work results in a wide price range. The figures given in the adjacent columns should be taken with the previous statement in mind.	33kV/11kV Primary Substation up to 19MW 33kV Underground Cable 33kV Overhead Line	£1.5m £0.1m per km £20000 per km

A3 Non Contestable Indicative Charges.

The following table and examples represent a range of indicative non-contestable charges for typical activities associated with the provision of new connections. The actual cost will vary depending upon the specific details of the scheme.

You should assume that all civil works on the site are your responsibility unless otherwise indicated and that all costs are exclusive of VAT.

Table of Non Contestable Indicative Charges Associated with the Adoption of Connection Assets

Activity	Description	Costs
Application and Administration Charge (Charge applicable to successful applicant)	Process of Customer Enquiries, Assessment of Point of Connection (POC), Provide Formal Offer Letter, Process Adoption Agreement and General Administration	**LV** scheme £910 per agreement **HV** scheme £1,060 per agreement **EHV** scheme £1,350 per agreement
On-Site Inspection	Site Visits including Witness Testing.	£190 per visit.
Network connection charges (excludes excavation and reinstatement).	Low Voltage network connection (Tee).	£625 per connection.
	Low Voltage Network Connection (Straight Joint)	£690 per connection
	Low Voltage Network Connection (Pole Termination)	£960 per connection
	Low Voltage Network Connection (Feeder Pillar Termination)	£1,680 per connection
	Low Voltage Network Connection (Pot End – associated with other non Contestable works	£185 per connection
	Low Voltage Network Connection (single phase service joint)	£360 per connection

	Low Voltage Network Connection (Three Phase 100 amp or single Multi-Service joint up to three single phase service connections)	£550 per connection
	Low Voltage Network Connection (Three phase 400 or 600 amp service joint)	£625 per connection
	Low Voltage polarity and earth loop impedance test (associated with each low voltage distributed service connection)	£9.00 per service connection
	High Voltage network connection (185/300 Tee Joint).	£2,045 per connection
	High Voltage Network Connection (185/300 Straight Joint)	£1,720 per connection
	High Voltage Network Connection (Pot End – associated with other Non Contestable works)	£540 per connection
	High Voltage network connection (Loop – 2 x 185/300 Straight Joints).	£2,175 per connection
	High Voltage Network Connection (Pole Termination)	£2,100 per connection
	High Voltage Network Connection (2 x Switchgear Termination)	£2,650 per connection
	High Voltage Network Connection (1 x Switchgear Termination)	£1,720 per connection
	EHV/Other	Price on application

Non Contestable Design Approval Indicative Charges for Domestic and Non-domestic Connections

Domestic: -

- For a development of up to 10 plots, an assessment charge of £210 will be levied.
- For a development of greater than 10 plots and up to 250 plots, an assessment charge of £330 will be levied.

- For developments greater than 250 plots, an assessment charge of £330 plus £2.00/plot will be levied.

Non-Domestic: -

HV Point of Connection

1. Infrastructure schemes; an assessment charge of £90 will be levied.

2. Single LV consumer or one or more HV consumers; an assessment charge of £210 will be levied.

3. Multiple LV consumers; the following assessment charges will apply.

    - For a total connection capacity up to 100kVA, an assessment charge of £210 will be levied.

    - For a total connection capacity of between 101kVA and up to 200kVA, an assessment charge of £210 + £60 will be levied.

    - For a total connection capacity of between 201kVA and up to 300kVA, an assessment charge of £210 + £120 will be levied.

    - For a total connection capacity of between 301kVA and 400kVA, an assessment charge of £210 +£180 will be levied – and so on up to 1500kVA.

    - For a total connection capacity of greater than 1500kVA, the assessment charge will be given on application.

LV Point of Connection

An assessment charge of £210 will be levied.

Domestic/Non-Domestic - Re-Assessment of Design Acceptance

A further re-assessment charge of £90 will be levied for all schemes that require amendment by the Customer, after the initial Design Acceptance has been processed.

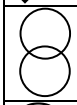
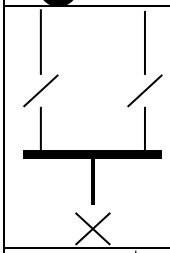
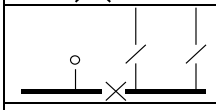
Please note that an assessment and design charge will be included within your connection charge for the associated connections works. Whilst such charges are not levied if you do not proceed with your connection offer, this may change in the future.

Calculating Site Visits for Monitoring of Contestable Schemes

Item	Calculation	Value	Comments
Mains			
LV Mains	50% of mains cable installed.	1 Site Visit for each 100m of mains cable installed.	Round up to nearest 100 m of mains cable installed.
HV Mains	50% of mains cable installed.	1 Site Visit for each 100m of mains cable installed.	Round up to nearest 100m of mains cable installed.
Trenchless Installation	-	1 Site Visit per 50m mains cable installed.	Round up to nearest 50m of mains cable installed.
LV Joints	50% of joints.	5 joints = 1 Visit.	Estimate 1 joint per 100m of mains cable installed.
HV Joints	100% of substations on site.	1 Site Visit per substation.	Estimate all joints and switchgear end boxes.
Service (Multiple)			
Service Cable Installation	10% of Plots.	5 Installations = 1 Site Visit.	Minimum 1 Site Visit.
Service Joints	20% of Plots.	5 Joints = 1 Site Visit.	Minimum 1 Site Visit.
Service Terminations	20% of Plots	10 Plots = 1 Site Visit.	Minimum 1 Site Visit.
Polarity & Loop Impedance Checks	20% of Plots	10 plots = 1 Site Visit.	Minimum 1 Site Visit.
Service (Individual)			
Service Cable Installation	100% of cable and trench.	1 Site Visit	Minimum 1 Site Visit
Service Termination	100% of Termination	1 Site Visit	Minimum 1 Site Visit
Note: For the inspection of the wiring installation associated with HV and LV CT Metering, a separate charge will be levied where applicable.			

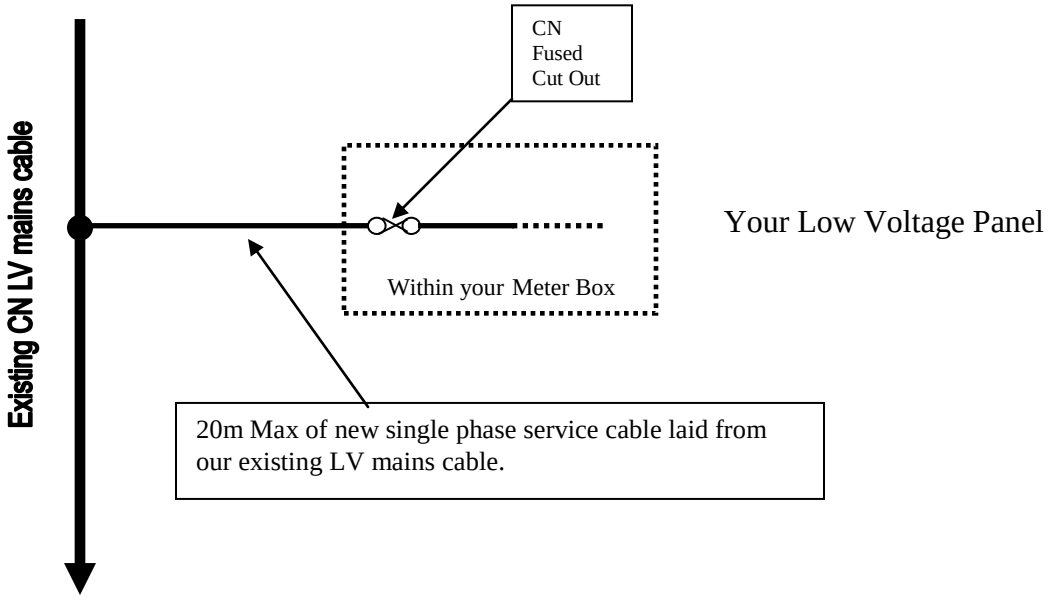
Substation Commissioning	100% of substations on site.	1 Site Visit to witness general testing per substation.	Estimate 1 additional Site Visit for protection testing where applicable.
Foundations	100% of substations on site.	1 Visit per substation.	Minimum 1 Site Visit
Transformer & Switchgear	100% of substations on site.	1 Visit per substation.	Minimum 1 Site Visit

Key to Illustrations

X	Circuit Breaker (High or low voltage)
	Switch
	Transformer
	Low voltage feeder fuse
	Joint on cable
	High voltage ring main unit
	High voltage extensible switchgear
	Metering voltage transformer
	Unmetered street furniture

Example 1 – One Single Phase low voltage connection incorporating a new service cable from an existing Low Voltage mains cable.

This illustrates an average cost to provide 1 low voltage single phase connection of 18kVA where the point of connection to existing network is within 3 metres of the customer boundary with excavation in paved footpath. The cable length will be no longer than 20 metres in total and work will be carried out predominantly within the customers' land, the cable trench will be excavated by the customer within their land. This would involve laying a new single phase service cable from the existing low voltage network onto your property. The point of connection between our Distribution System and your wiring installation would be the outgoing terminals of our cut-out, which would normally be located within your meter box.



Total Charges

Applicable if our Connections Provider completes all off site works and the customer completes all on site excavation, ducting and reinstatement.

Item	Cost (£)
Service and Connection	£1,378
Total connected assets	£1,378

Your contribution would be calculated as follows:

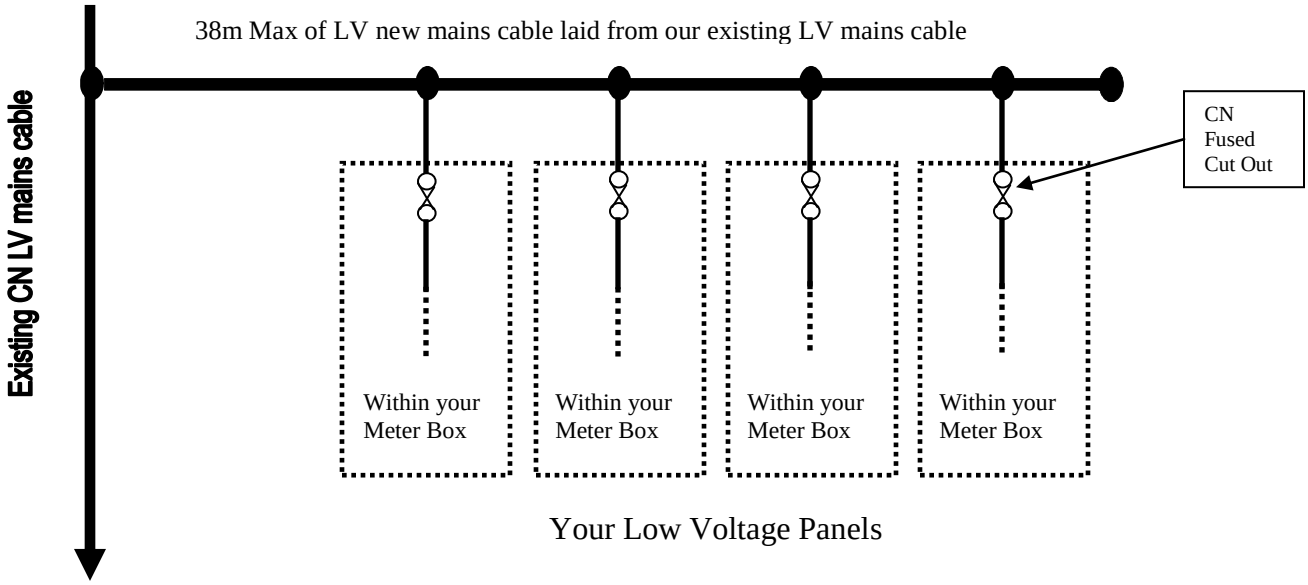
Connection Cost **£1,378**

The following are the Non-Contestable Charges for the connection as detailed in the above example and are in addition to the charges levied by your contractor who carries out the contestable works.

Cost Breakdown	Cost	Basis of charge
Application and Administration Charge	£910	LV Scheme
Design Approval	£210	Refer to "Domestic"
Legal Charges	£0	Project Dependent
Inspection of Contestable Works	£190	1 Visits @ £190
Final Connection Charge	£360	LV connection
Diversion Works	£0.00	If applicable
Upstream Reinforcement Works	£0.00	If applicable
Total	**£1,670**	

Example 2 - Four Single Phase low voltage connections incorporating a Low Voltage mains Extension from an existing Low Voltage mains cable.

This illustrates an average cost to provide four low voltage single phase connections of 18kVA where the work is predominantly completed within the customer's land. This would involve laying a new low voltage mains cable from the existing low voltage network onto the customer's property. The four new single phase services will be jointed to the new mains cable and terminated at the customer's meter locations. The point of connection between our Distribution System and your wiring installation would be the outgoing terminals of our cut-out, which would normally be located within your meter box.



Total Charges

Applicable if our Connections Provider completes all off site works and the customer completes all on site excavation, ducting and reinstatement.

Item	Cost (£)	
Low voltage mains cable	£3,235	38m, of which 4 metres laid off site in
Service and Connection	£2,389	4 new services
Legal Charges	£786	(Project Dependent e.g. Cable
Total connected assets	£6,410	

Your contribution would be calculated as follows:

Connection Cost **£6,410**

The following are the Non-Contestable Charges for the connection as detailed in the above example and are in addition to the charges levied by your contractor who carries out the contestable works.

Cost Breakdown	Cost	Basis of charge
Application and Administration Charge	£910	LV Scheme
Design Approval	£210	Refer to "Domestic"
Legal Charges	£786	Project Dependent e.g. Cable Easement
Inspection of Contestable Works	£570	3 Visits @ £190
Final Connection Charge	£625	LV connection
Diversion Works	£0.00	If applicable
Upstream Reinforcement Works	£0.00	If applicable
Total	**£3,101**	

Example 3 – One Three Phase Low Voltage connection incorporating an existing pole mounted transformer upgrade and Low Voltage mains Extension from an existing Low Voltage mains cable.

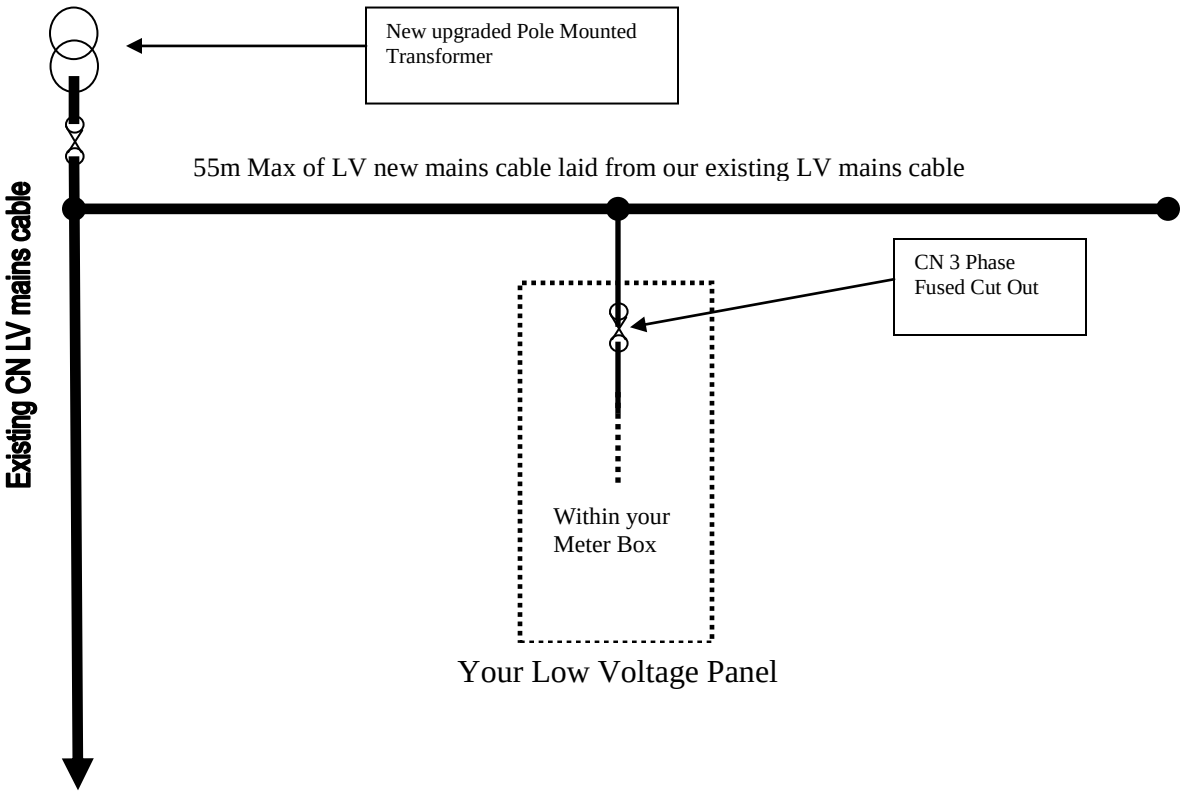
This illustrates an average cost to provide one low voltage three phase connection of 40kVA.

A) This scheme would involve upgrading the existing pole mounted transformer as the existing transformer is at capacity.

Or,

B) This scheme would involve upgrading the pole mounted transformer which has sufficient capacity to support the load requirements but would need to be upgraded to support the customer's motor starting characteristics. As the transformer change is required to only support these disturbing loads, the customer will pay the whole cost of upgrading the transformer.

In both examples a new mains cable would be laid for approximately 55 metres from the existing low voltage network onto the customer's land. The low voltage work would take place predominantly in the public highway/third party land. A new three phase service would be jointed to the new mains cable and terminated at the customer's meter location. The point of connection between our Distribution System and your wiring installation would be the outgoing terminals of our cut-out, which would normally be located within your meter box.



Total Charges

Applicable if our Connections Provider Completes all the Works

A) – Transformer change for increased load request on

Item	**Cost (£)**
Pole Mounted Transformer	£11,335
Low voltage mains cable	£4,156. Laid in verge and footpath excavation
Service terminations	£1,166
Legal Charges (includes Land	£535 (Project Dependent e.g. wayleave)
Total connected assets	£17,192
Central Networks Contribution	£6,687

Your contribution would be calculated as follows:

Customer will only pay proportion of the new transformer costs based on the load requested

Connection Cost £10,505

B) – Transformer change for disturbing loads

Item	**Cost (£)**
Pole Mounted Transformer	£11,335
Low voltage mains cable	£4,156. Laid in verge and footpath excavation
Service terminations	£1,166
Legal Charges (includes Land	£535 (Project Dependent e.g. wayleave)
Total connected assets	£17,192
Central Networks Contribution	£0

Your contribution would be calculated as follows:

Customer will pay the entire cost of changing the new pole mounted transformer as the transformer change is only required to support the customer's motor start characteristics.

Connection Cost £17,192

Transformer change for increased load - The following are the Non-Contestable Charges for the connection as detailed in the above example and are in addition to the charges levied by your contractor who carries out the contestable works.

Cost Breakdown	Cost	Basis of charge
Application and Administration Charge	£1,060	HV Scheme
Design Approval	£210	Refer to "Non-Domestic"
Legal Charges	£535	Project Dependent e.g. Wayleave
Inspection of Contestable Works	£570	3 Visits @ £190
Final Connection Charge	£625	LV connection
Diversion Works	£0.00	If applicable
Upstream Reinforcement Works	£11,335	Pole Mounted
Central Networks Contribution	(£6,687)	Transformer
Total	**£7,648**	

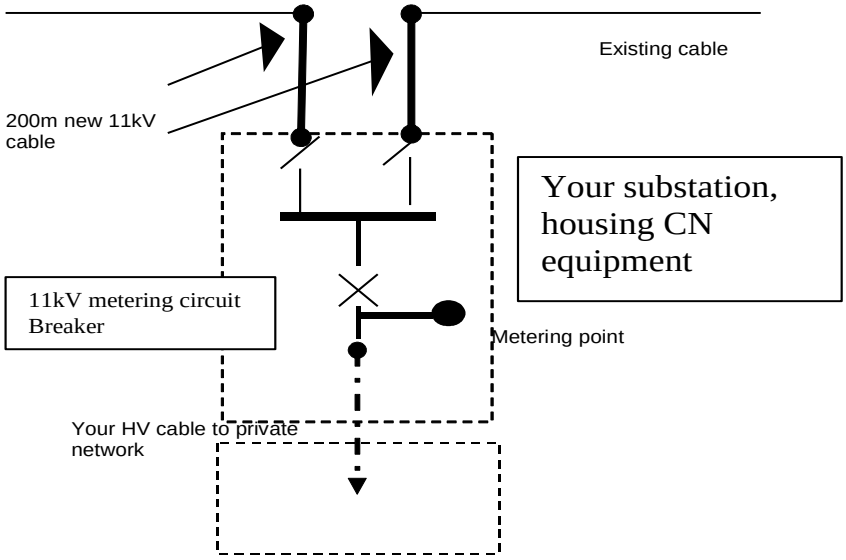
Transformer change for disturbing loads - The following are the Non-Contestable Charges for the connection as detailed in the above example and are in addition to the charges levied by your contractor who carries out the contestable works.

Cost Breakdown	Cost	Basis of charge
Application and Administration Charge	£1,060	HV Scheme
Design Approval	£210	Refer to "Non-Domestic"
Legal Charges	£535	Project Dependent e.g. Wayleave
Inspection of Contestable Works	£570	3 Visits @ £190
Final Connection Charge	£625	LV connection
Diversion Works	£0.00	If applicable
Upstream Reinforcement Works	£11,335	Pole Mounted
Central Networks Contribution	£0,00	Transformer
Total	**£14,355**	

Example 4 – New High Voltage Connection, capacity greater than 1MVA

This illustrates an average cost to provide a switched alternative connection metered at high voltage.

The substation housing for our equipment should be provided by the customer, and should be on the boundary of the site, where possible, to provide 24/7 access for CN Operational Staff. The point of connection between our Distribution System and your wiring installation would be at the 11,000 volt terminals of our metered circuit breaker, which would be located within your substation.



Total Charges

Applicable if our Connections Provider completes all the works

Item	**Cost (£)**
High Voltage cable	£18,268 200m laid off-site in 100m trench in tarmac footpath
Network Substation	£26,144
Legal Charges	£892 (Project Dependent e.g. Cable
Total connected assets	£45,304

Your contribution would be calculated as follows:

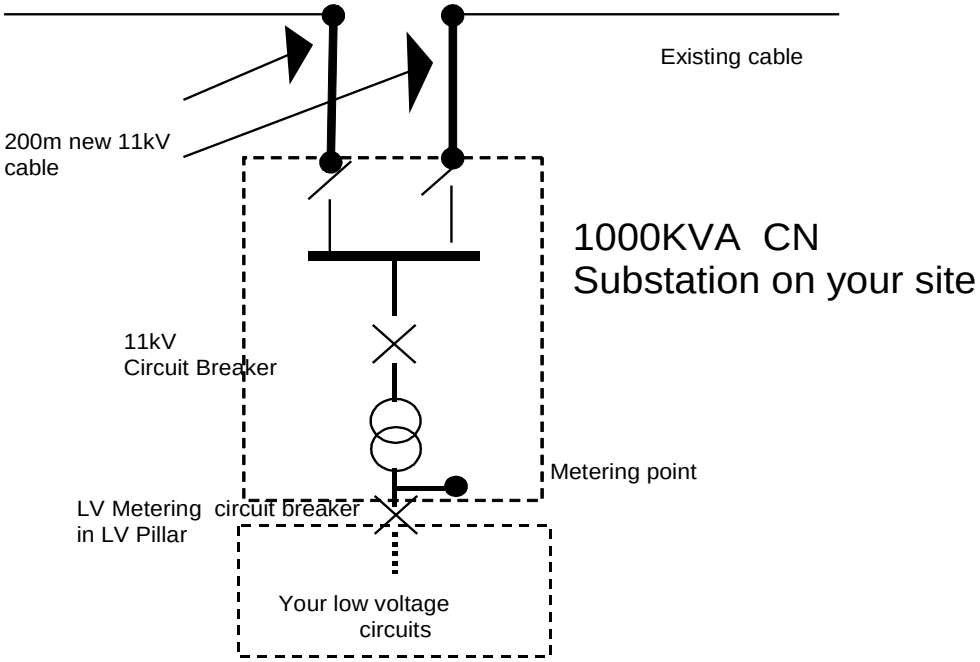
Connection Cost **£45,304**

The following are the Non-Contestable Charges for the connection as detailed in the above example and are in addition to the charges levied by your contractor who carries out the contestable works

Cost Breakdown	Cost	Basis of charge
Application and Administration Charge	£1,060	HV Scheme
Design Approval	£210	Refer to "Non-Domestic" HV Points of Connection Item 2 - Page 34
Legal Charges	£786	Project Dependent e.g. Cable Easement
Inspection of Contestable Works	£760	4 Visits @ £190
Final Connection Charge	£2,175	Looped HV connection.
Diversion Works	£0.00	If applicable
Upstream Reinforcement Works	£0.00	If applicable
Total	**£ 4,991**	

Example 5 – New Low Voltage Connection, up to 1000kVA, via Air Circuit Breaker (ACB) substation

This illustrates an average cost to provide a switched alternative connection of up to 1000kVA, metered at low voltage. The point of connection between our Distribution System and your wiring installation would be the outgoing terminals of our low voltage air circuit breaker (ACB), which would be located within our substation.



Total Charges

Applicable if our Connections Provider completes all the works

Item	**Cost (£)**
High Voltage cable	£18,268 200m laid in 100m common trench offsite,
Network Substation	£46,593 1000KVA ACB Unit Substation
Legal Charges	£786 (Project Dependent)
Total connected assets	£65,647

Your contribution would be calculated as follows:

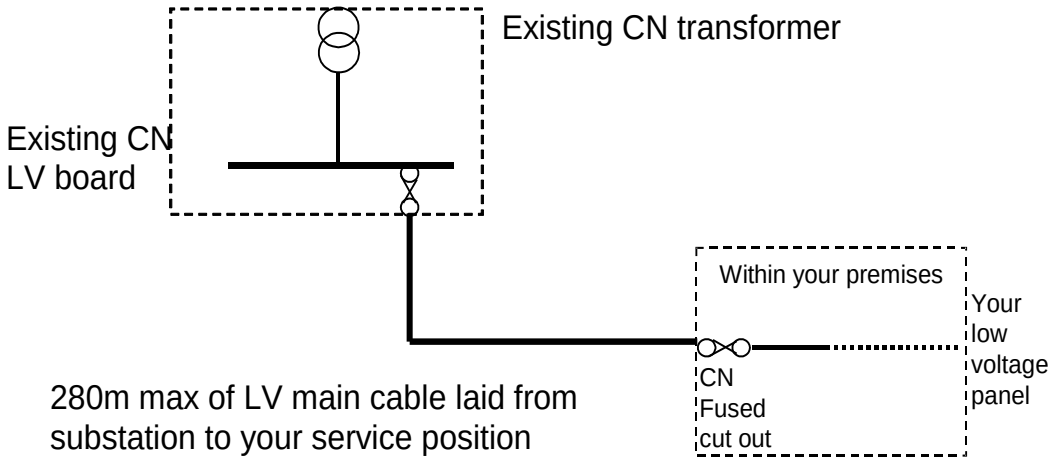
Connection Cost **£65,647**

The following are the Non-Contestable Charges for the connection as detailed in the above example and are in addition to the charges levied by your contractor who carries out the contestable works

Cost Breakdown	Cost	Basis of charge
Application and Administration charge	£1,060	HV Scheme
Design Approval	£210	Refer to "Non-Domestic" HV Points of Connection Item 2 - Page 34
Legal Charges	£786	Project Dependent e.g. Cable Easement
Inspection of Contestable Works	£760	4 Visits @ £190
Final Connection Charge	£2,175	Looped HV connection
Diversion Works	£0.00	If applicable
Upstream Reinforcement Works	£0.00	If applicable
Total	**£4,991**	

Example 6 – New Low Voltage Connection, up to 275kVA, from existing substation

This illustrates an average cost to provide a low voltage connection of 200kVA. This would involve laying a cable from the local substation into your premises. It is assumed that there is sufficient capacity at the existing substation for the new supply. The point of connection between our Distribution System and your wiring installation would be the outgoing terminals of our cut-out, which would normally be located within your switch room.



Total Charges

Applicable if our Connections Provider completes all the works

Item	Cost (£)	
Low voltage mains cable	£28,408	280m laid off-site in tarmac
Service and Connection	£2,551	
Administration Charges	£107	
Legal Charges	£786	(Project Dependent e.g.
Total connected assets	£31,852	

Your contribution would be calculated as follows:

Connection Cost **£31,852**

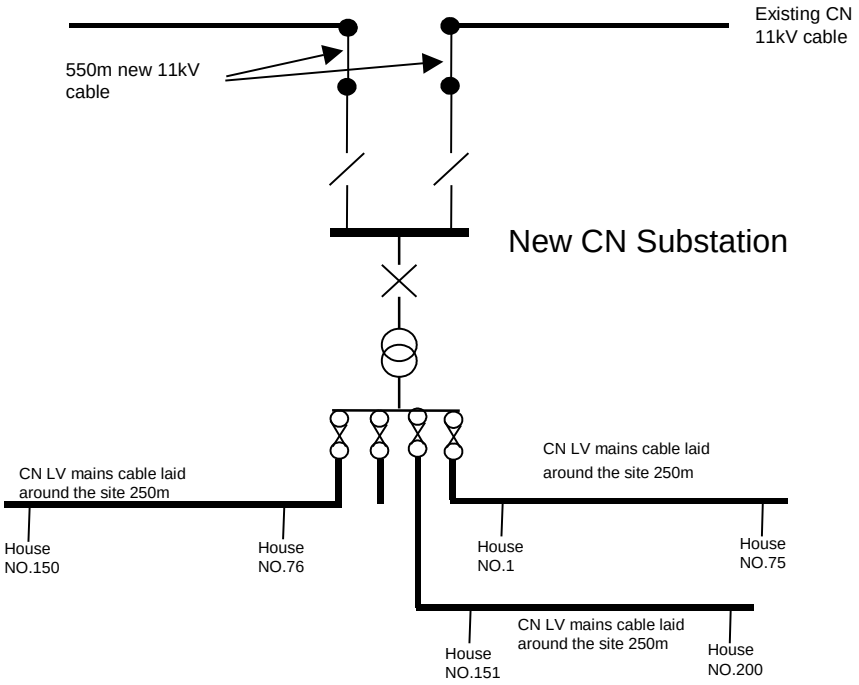
The following are the Non-Contestable Charges for the connection as detailed in the above example and are in addition to the charges levied by your contractor who carries out the contestable works

Cost Breakdown	Cost	Basis of charge
Application and Administration Charge	£910	LV Scheme
Design Approval	£270	Refer to "Non-Domestic" LV Points of Connection Page 34
Legal Charges	£786	Project Dependent e.g. Cable Easement
Inspection of Contestable Works	£360	2 Visits @ £190
Final Connection Charge	£625	LV connection
Diversion Works	£0.00	If applicable
Upstream Reinforcement Works	£0.00	If applicable
Total	**£2,951**	

Example 7 – New Connections for housing development

This illustrates an indicative cost to provide a connection for 200 new dwellings with normal domestic loads such as gas space and water heating. The scheme would involve establishing a new distribution substation on your

site, laying 550 metres of high voltage mains cable from our high voltage network to the new substation. From this substation 750 metres of low voltage mains cable will be installed around the site. Approximately 20 metres of service cable will then be laid from this mains cable to each dwelling, terminating in an external meter cabinet. All civil works onsite would be the responsibility of the developer and no allowance is made for street lighting.



Total Charges

Applicable if our Connections Provider Completes all the Works

Item	**Cost (£)**
High Voltage cable	£27,300 100m laid on-site and 450m laid in a 225m
Network Substation	£47,800
Low voltage mains cable	£23,000
Service terminations	£53,500
Legal Charges	£929 (Project Dependent e.g.
Total connected assets	£152,529

Your contribution would be calculated as follows:

Connection Cost **£152,529**
Connection cost per plot **£762.65**

The following are the Non-Contestable Charges for the connection as detailed in the above example and are in addition to the charges levied by your contractor who carries out the contestable works

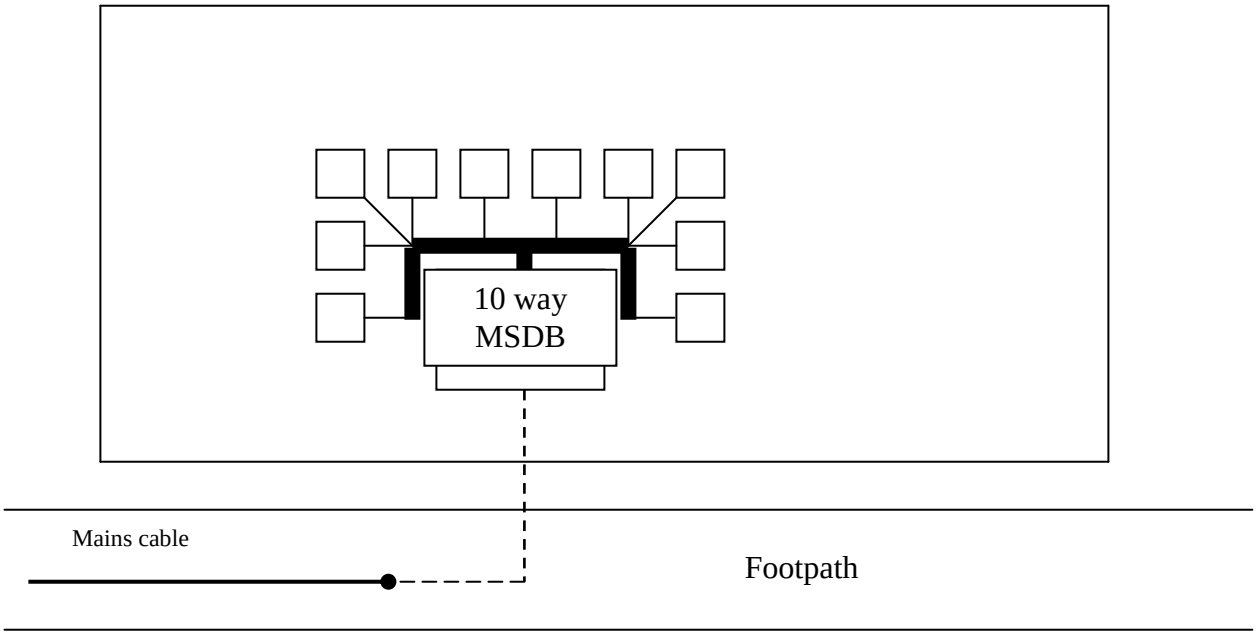
Cost Breakdown	Cost	Basis of charge
Application and Administration Charge	£1,060	HV Scheme
Design Approval	£570	Refer to "Domestic" Page 34
Legal Charges	£929	Project Dependent e.g. Substation Lease
Inspection of Contestable Works	£5,510	29 Visits @ £160 Page 36
Final Connection Charge	£2,175	Looped HV connection
Diversion Works	£0.00	If applicable
Upstream Reinforcement Works	£0.00	If applicable
Total	**£10,244**	

Example 8 – Multi-Service Distribution Board

This option is used where a single building is to provide multi occupancy, typically flats, and a single supply point is designated.

The example below shows a 10 way distribution board with 10 single phase service connections, a legal easement will be required to secure rights to this service position and a suitable space must be provided to house this equipment and the meters.

This cost provides for the MSDB unit, the cable connection and excavation on highway only. The customer will be responsible for the on site excavation suitable ducted entry, provision of support trays for the metering cables and earth bar/bonding.



Applicable if our Connections Provider completes all off site works and the customer completes all on site excavation, ducting and reinstatement.

Item	Cost (£)	
Low voltage mains cable	£703	10m of which 3 metres laid off site in
Service and Connection	£4,166	10 services provided via Multi
Legal Charges	£786	Legal Easement for Multi service
Total connected assets	£5,655	

Your contribution would be calculated as follows:

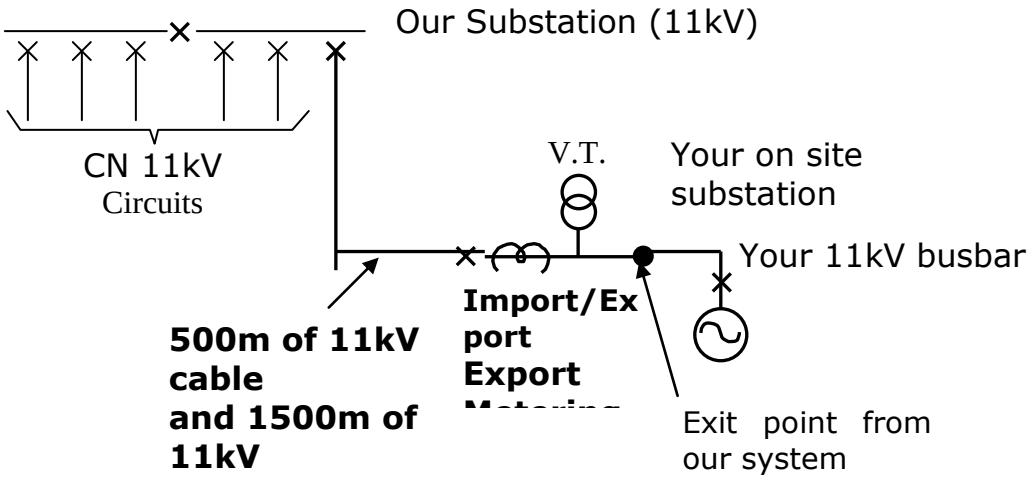
Connection Cost **£5,655**

The following are the Non-Contestable Charges for the connection as detailed in the above example and are in addition to the charges levied by your contractor who carries out the contestable works.

Cost Breakdown	Cost	Basis of charge
Application and Administration Charge	£910	LV Scheme
Design Approval	£210	Refer to "Domestic"
Legal Charges	£786	Project Dependent e.g. Easement
Inspection of Contestable Works	£570	3 Visits @ £190
Final Connection Charge	£625	LV connection
Diversion Works	£0.00	If applicable
Upstream Reinforcement Works	£0.00	If applicable
Total	**£3,101**	

Example 9 – Connection of generation for up to 3000kVA

This illustrates an indicative cost to provide a connection for up to 3000kVA of generation, involving a significant new circuit length to an existing substation. This would involve laying a cable from the customer's 11,000 volt busbar to our primary substation. The point of connection between our distribution system and the customer's wiring installation would be the point at which our cable terminated on the customer's 11,000 volt metering breaker.



The indicative cost for this work would be £102,100. This would be comprised of £45,400 for the high voltage cable, £30,100 for the overhead line and £26,600 for the high voltage, metered bus coupler circuit breaker.

The customer contribution would be calculated as follows:

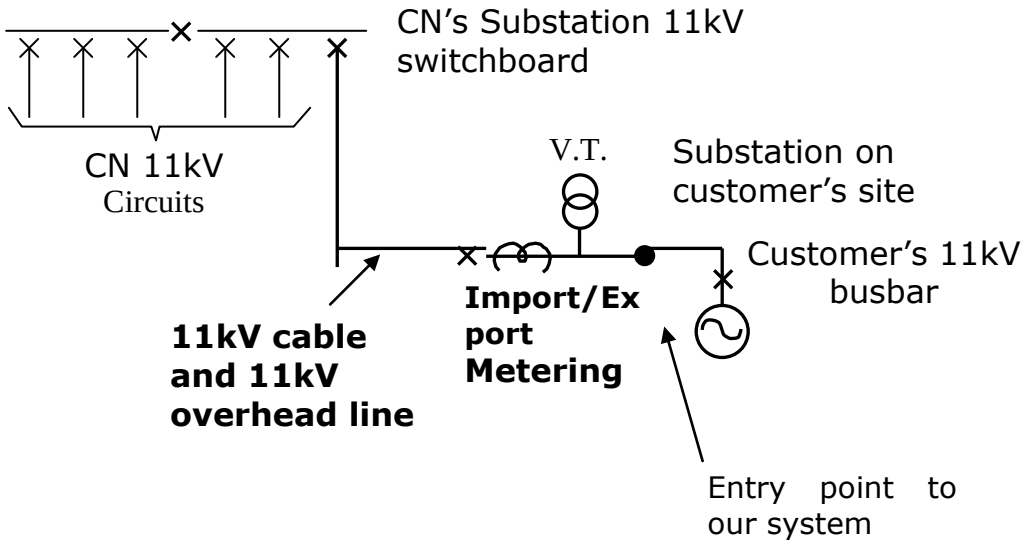
Total Connection Cost	**£102,100**

Example 9a Generation connection including reinforcement for fault level capacity

This illustrates an indicative cost to provide a connection for a generator involving reinforcement. The example shows the application of the cost apportionment rule for fault level. The costs of the dedicated connection assets are shown in example 9.

This example assumes that our substation 11 kV switchboard needs reinforcing. Calculation 9a sets out the apportionment charge for reinforcement necessary to increase fault level capacity. The apportionment charge would be added to the charge for the dedicated assets to determine the total connection charge.

This example assumes that the existing 11kV switchboard has a fault level capacity of 250,000 KVA. The new 11kV switchboard will have a fault level capacity of 315,000KVA.



Calculation 9a Fault level capacity

Existing network fault level capacity = 250,000kVA
Requested fault level capacity = 24,000kVA
New network security capacity = 315,000kVA
Cost of new Switchboard = £200,000

Fault Level CAF = $\frac{\text{3x fault level contribution from Connection x 100 \%}}{\text{New Equipment fault Level Capacity}}$, (max 100%)

Fault Level CAF = $\frac{\text{3 x 24,000 x 100\%}}{}$ = 22.9%

315,000

Fault level reinforcement charge = 22.9% of £200,000 = £45,800

This would be added to the cost of the dedicated assets in example 9 to determine the total connection charge.

Example 9b Generation Connection Including Capacity Reinforcement
This illustrates an indicative cost to provide a connection where a capacity reinforcement is required. This example shows the connection of a generator to an existing 11kV circuit where the circuit has insufficient capacity to carry the generator current. The calculation sets out the apportionment charge for reinforcement necessary to increase the capacity of the circuit.

The existing 11kV circuit to which the generator is to be connected has a rating of 3.0 MVA while the export capacity of the generator is 4.0 MVA. The circuit is to be replaced with one rated at 8.0 MVA.

Calculation of Security Capacity

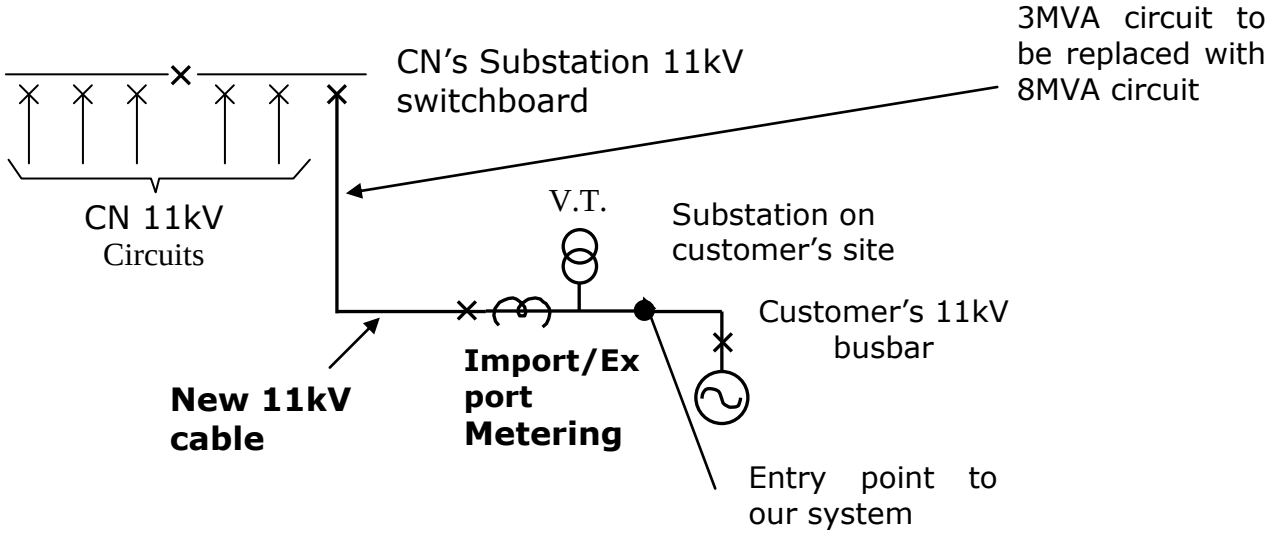
Existing network security capacity = 3,000 kVA (demand)
Requested capacity = 4,000 kVA
New network security capacity = 8,000 kVA
Cost of new circuit =£131,000 (based on 1km - see table on page 32)

Security CAF = $\frac{\text{Required capacity – Existing Capacity x 100\%}}{\text{New Network Capacity}}$ (maximum 100%)

Security CAF = $\frac{\text{4,000 -3,000 x 100\%}}{\text{8,000}}$ = 12.5%

Security reinforcement charge = 12.5% of £131,000 = £16,375

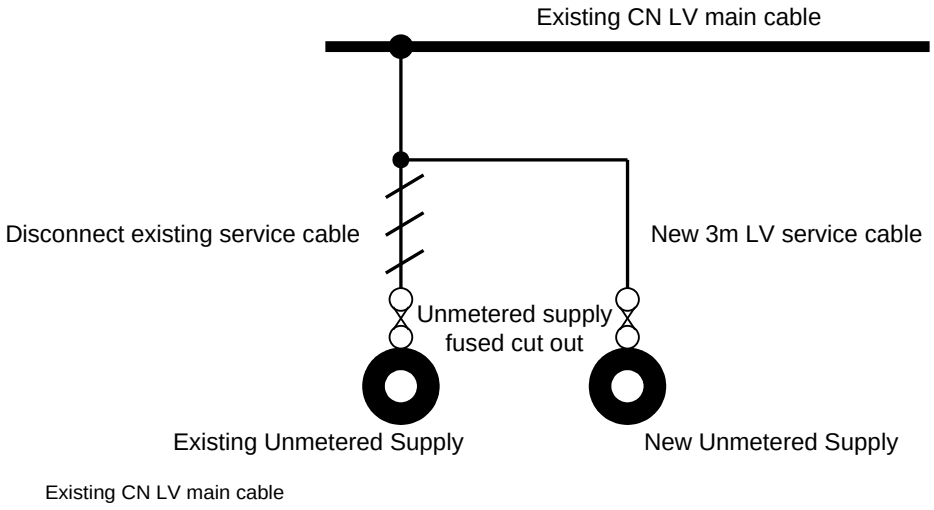
This would be added to the cost of the dedicated assets i.e. the cable tee connection and the metering circuit breaker etc to determine the total charge.



A4 Illustrative Charges for Service Transfer Work/New Connection for Unmetered Supplies

The following examples represent indicative charges for typical activities associated with the provision of a new connection to street furniture and also the transfer of a service cable from an existing item of street furniture to a new item of street furniture. The actual cost will vary depending upon the specific details of the scheme.

Example 1 - This illustrates the average cost to transfer an unmetered service to a new position within 3 metres of its current position. This would involve connection to the existing service cable, 3 metres of excavation in surfaced footpath, removal of the existing and installation of a new unmetered supply cut out. Installation of the new service cable and reinstatement would be carried out by us.

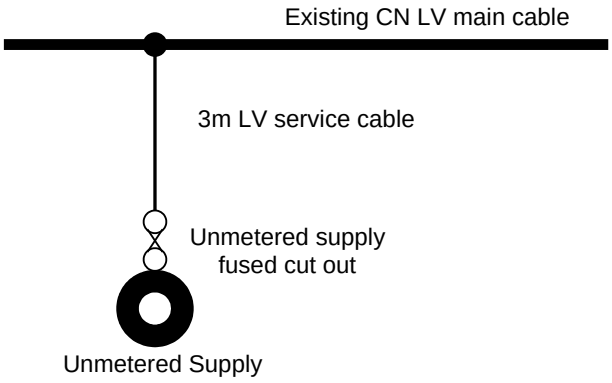


The indicative cost for this work would be £410 exc. VAT

Your contribution would be calculated as follows:

Connection cost **£410 plus VAT**

Example 2 - This illustrates the average cost to install a new unmetered service within 3 metres of an existing LV main cable. This would involve connection to the existing LV main cable, 3 metres of excavation in surfaced footpath and reinstatement carried out by us, installation of the new service cable and new unmetered supply cut out.



The indicative cost for this work would be £509 exc. VAT

Your contribution would be calculated as follows:

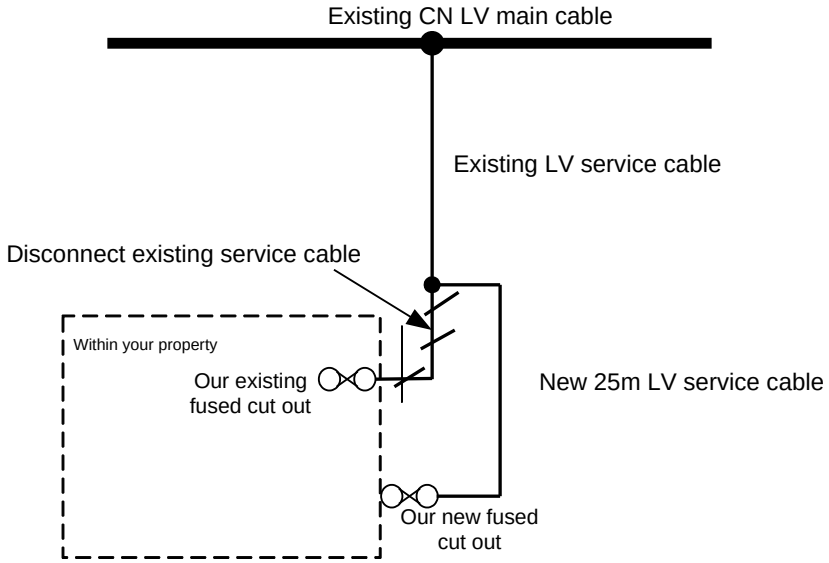
Connection cost	**£509 plus VAT**

A5 Illustrative Charges for Service Alterations to Domestic Properties

The following examples represent indicative charges for service alteration work associated with an underground service and also an overhead service. The actual cost will vary depending upon the specific details of the scheme.

You should assume that all civil works on the site are your responsibility unless otherwise indicated and that all costs are exclusive of VAT.

Example 1 - This illustrates an average cost to move an existing underground domestic service from the inside of a building to the outside of the building 25m away from the original position. This would involve removing the fused cut out, a connection to the existing service cable and the installation of a new fused cut out on the exterior of the building.

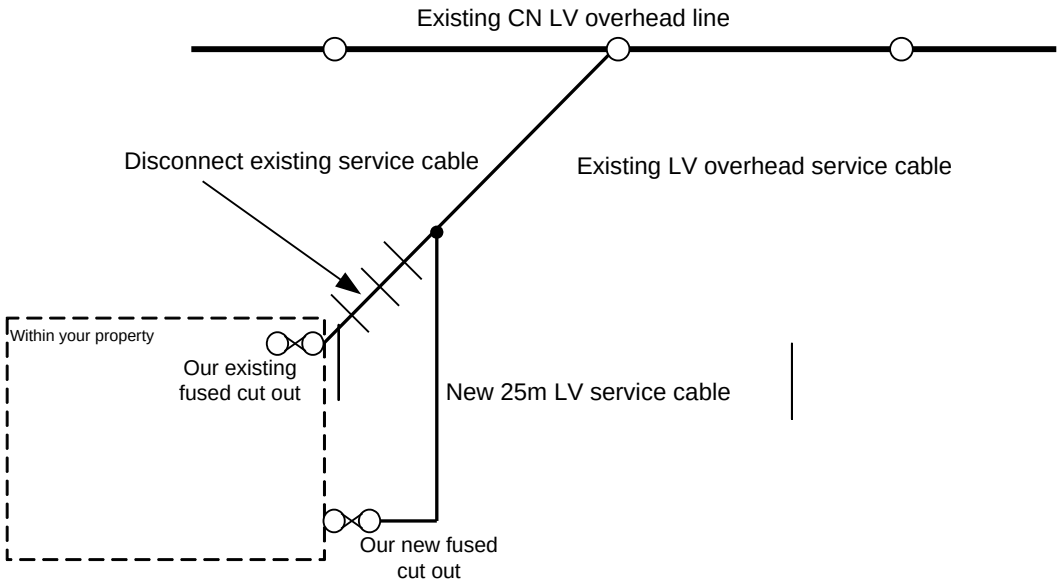


The indicative cost for this work would be £348.50 exc. VAT

Your contribution would be calculated as follows:

New service and excavation (based on 15m unsurfaced)	£348.50 exc. VAT
Connection cost	**£348.50 plus VAT**

Example 2 - This illustrates an average cost to move an existing overhead domestic service from the inside of a building to the outside of the building. This would involve removing the existing fused cut out, a connection to the existing service cable and the installation of a new fused cut out on the exterior of the building within 25m of the original position



The indicative cost for this work would be £563 exc. VAT

Your contribution would be calculated as follows:

Service removal	£180 plus VAT
New service	£383 plus VAT
Connection cost	**£563 plus VAT**

3.0 Implementation Date

3.1 As none of the amendments indicated above are changes to our policy and our method of working remains the dame, then we propose that this modification will be implemented on 1 September 2009.