



Connections Policy Document

6 April 2006

CONTENTS

EXECUTIVE SUMMARY	3
1. INTRODUCTION	5
2. OBJECTIVES OF THE CONNECTION POLICY	6
3. GUIDING PRICIPLES OF CONNECTION CHARGES	6
4. CATEGORISATION OF CUSTOMER TYPES	7
5. I&C CONNECTIONS	8
5.1 LARGE I&C CUSTOMERS	8
5.2 MEDIUM AND SMALL I&C CUSTOMERS	9
5.2.1 <i>Cost of Connection Less Customer Contribution >€250,000</i>	11
5.2.2 <i>Cost of Connection Less Customer Contribution <=€250,000</i>	11
5.3 INSTITUTIONAL I&C CUSTOMERS	12
5.4 IMPACT OF CHANGES TO CURRENT POLICY RELATED TO I&C CUSTOMERS.....	12
6. DOMESTIC CONNECTIONS	13
6.1 DOMESTIC CONNECTIONS: ONE-OFF HOUSING.....	13
6.2 DOMESTIC CONNECTIONS: NEW HOUSING	14
6.3 DOMESTIC CONNECTIONS: NON-GAS ESTATES.....	15
6.4 DOMESTIC CONNECTIONS: LOCAL AUTHORITY PREMISES	17
6.5 IMPACT OF CHANGES TO POLICY RELATED TO DOMESTIC CUSTOMERS	17
7. MIXED CONNECTIONS	17
7.1 MIXED DEVELOPMENTS	17
7.2 MIXED NON-GAS ESTATES	19
7.3 IMPACT OF CHANGES	21
8. CONNECTION OF NEW TOWNS	21
9. TREATMENT OF COSTS OF SPARE PIPELINE CAPACITY	22
10. CUSTOMER REQUESTED NON-LEAST COST CONNECTION DESIGN	22
11. DESIGN CHARGES	23
12. OPPORTUNISTIC NETWORK DEVELOPMENT	23
13. TRANSITION TO THE NEW CONNECTION POLICY	24
13.1 CUSTOMERS WHO WOULD HAVE HAD HIGHER PAYMENTS UNDER THE OLD POLICY.....	24
13.2 CUSTOMERS WHO WOULD HAVE HAD LOWER PAYMENTS UNDER THE OLD POLICY	25
ANNEX 1. QUOTATION DETAILS	26
ANNEX 2. INSTIUTIONAL I&C CUSTOMERS	27
ANNEX 3. I&C SUMMARY TABLE	28
ANNEX 5. CONNECTION CHARGES COMPARISION	30
ANNEX 6A. NEW TOWN APPRAISAL TEMPLATE - INPUTS	31
ANNEX 6B. NEW TOWN APPRAISAL TEMPLATE – RESULTS SUMMARY	32
ANNEX 7. STANDARD ASSUMPTIONS ON DOMESTIC CONSUMPTION	33

EXECUTIVE SUMMARY

Following on from Bord Gais Networks proposals to the CER, and CER industry consultation, Bord Gais Networks has been directed by the Commission to implement a new connection policy which sets out the detailed criteria for the evaluation of network extensions in order to achieve a balance between growing the grid on the one hand and competitiveness of gas prices on the other.

As directed by the Commission, the new policy replaces the connection policies for Transmission and Distribution implemented in 2003. For all customers the recovery of full connection costs is split between upfront charges, supplemental charges based on an economic test, and tariffs. The revised policies have been developed on the basis of a set of high level objectives.

The previous connection policies determined the initial contribution for new connections on the basis of whether an Industrial or Commercial customer had a choice as to where they locate their premises. Where those customers had a “choice of location” they paid the full capital costs associated with the connection. The new connection policy replaces the “choice of location” criterion with consumption and pressure criteria. For Large Industrial and Commercial customers (consumption greater than 260GWh and connection pressure of 16 barg or above) connection charges will cover the full capital costs attributable to meeting customer requirements, including any upstream (deep) reinforcement required. This is consistent with the previous policy.

For Medium and Small Industrial and Commercial customers (consumption less than 260GWh or connection pressure less than 16 barg), connection charges will comprise of an upfront charge of 30% of the cost of the connection, plus a supplemental charge based on an economic test evaluated over seven years where appropriate. Under the old policy customers in this category paid 100% of the relevant capital costs upfront where they were deemed to have a “choice of location”. This new policy will benefit customers with a “choice of location” who will be required to pay 30% upfront (plus a supplemental charge where appropriate) compared to 100% of capital costs under the old policy.

For Institutional Industrial and Commercial customers (those who could be expected to be connected to the network for longer than a normal commercial enterprise) the economic test will be evaluated over 20 years if the cost of connection less the customer contribution paid is less than or equal to €250K. However, if the cost of connection less the customer contribution paid is greater than €250K, the economic test will be evaluated over 7 years. Similarly, these customers will pay 30% of the cost of the connection, plus a supplemental charge where appropriate. Under the previous policy, these customers paid 100% of the relevant capital costs upfront where they were deemed to have a choice of location.

For domestic customers, the standard domestic connection charge of €250 (€220 + VAT) for the first 15 metres of service pipe plus an incremental fixed charge per metre for service connections over 15 metres (currently €32 per metre) will be applied. This charging methodology is consistent with the old policy and will continue to apply to one-off connections of existing housing where there is no gas mains extension required.

For new housing, developers will pay the same standard charge for each connection (€220 + VAT) as for one-off connections, and in addition there will be a supplemental charge based on an economic test calculated over 20 years. The impact of this will be an increase of €70 (plus VAT) per house being applied to the developer.

A new policy for the connection of non-gas estates is being introduced, with the standard domestic charge being supplemented by an additional charge to cover the cost of mains extension to the estate, the charge being paid by all customers connecting in the first 10 years. The connection of the estate will require a minimum number of customers to sign-up. This should represent an improvement over the previous policy which did not specifically cater for non-gas estates.

The revised policy also sets out rules for mixed developments and mixed non-gas estates, i.e. where there is a mixture of industrial/commercial and domestic end users.

For connections of new towns, the economic test will include both Transmission and Distribution tariffs revenues and the economic test will be evaluated over 25 years for both industrial, commercial and new housing to reflect the lower risk and broader growth opportunities of a diversified new town load base. Under the new policy, it will be possible to appraise a new town either on its own or as part of a regional group of towns.

In developing the network, Bord Gáis Networks will agree prudent criteria with the Commission for the construction of pipelines with spare capacity where there is an expectation of future load growth. Pipelines may also be constructed ahead of sign-up by customers where there is a strong expectation of such sign-up and where early construction would reduce overall long term costs.

Under the new policy customers will be charged full connection costs for specific connection designs which are more expensive than Bord Gáis Networks' view of the least cost connection and for the administrative costs of initial connection design work (to be offset against connection costs).

Finally, the policy sets out rules for the transition to the new arrangements.

The new policy should have a number of benefits. It should make connection charges easier for customers to understand and estimate, and it should ensure that there is a clear and transparent policy in a number of areas in which the existing policy is silent (e.g. non-gas estates). The new policy should also encourage the connection of new loads to the network where such connection is economically efficient in the long term. An initial assessment of the likely impact of the revised policy on network tariffs indicates that, while there will be a small increase in tariff levels in the short term as a result of increased connection activity, these should be offset in the medium to long term by greater future load growth.

A connection charges summary table with respect to Industrial, Commercial and Domestic customers is contained in Annex 4. Annex 5 contains a detailed comparison of the changes to Connection Charges between the previous policies and the new connection policy.

1. INTRODUCTION

The previous connection policies for gas transmission and distribution were implemented in 2003. Since their implementation, there have been a number of significant changes to the Irish gas market, including market opening. Equally, Bord Gáis Networks, the Commission and users have had experience of the operation of those policies, and hence an understanding of their advantages and the potential areas for their development. Finally, it is important to note that Irish gas network utilisation remains low by international standards – hence, the connection of economic loads in the future is in the interests of all customers.

In the light of this experience, Bord Gáis Networks has developed revised Transmission and Distribution connection policies. These revised policies have been developed by Bord Gáis Networks to be consistent with the efficient commercial operation and development of the network, ensuring that only economic investments in the long term interests of final customers of the network are made.

A single policy now covers the connection of loads to the Transmission and Distribution Network. This policy document therefore considers the proposed commercial terms which are relevant for the connection of loads to any part of the Bord Gáis network. We do not consider the technical design of connections in this document – unless otherwise requested by the customer, Bord Gáis Networks will construct connections on a least project cost fit-for-purpose basis, taking into account the specific characteristics of each load.

In this document, we set out at a high level:

- ⇒ commercial objectives and principles of a new connection policy;
- ⇒ the way in which the new policy will apply to different customer classes, and the impact which these changes will have. The customer types defined are:
 - Large Industrial and Commercial connections;
 - Small & Medium Industrial & Commercial connections;
 - Institutional Industrial & Commercial connections;
 - One-off domestic connections;
 - New development connections;
 - Non-gas estate connections; and
 - Mixed developments and mixed non-gas estate connections;
- ⇒ the approach to a number of non-customer class specific elements of the connection policy:
 - the costs of spare pipeline capacity;
 - customer requested non-least cost connection design;
 - design charges;
 - opportunistic network development; and
- ⇒ the approach to transition from the previous connection policies.

This document sets out policies relating to the connection of new loads to the network and the related commercial arrangements between Bord Gais Networks and the customer, including Shippers, End Users and developers. This document is not intended to deal with the ongoing relationship with customers once they have been connected to the network. Documents covering the relationship with customers after they have been connected will be developed separately.

2. OBJECTIVES OF THE CONNECTION POLICY

Bord Gáis Networks believes that any connection policy should facilitate a number of high level objectives. These include:

- ⇒ Being clear, transparent, and eliminating current customer confusion over the applicable charges;
- ⇒ Being cost effective to implement;
- ⇒ Applying similarly to both transmission and distribution connections for the same customer type;
- ⇒ Encouraging the connection of new customer load where it is efficient. This should apply both within the existing gas supply area, in new areas, and across customer classes. The objective of connecting efficient new customer load should, in the medium and long term, increase throughput and reduce unit tariffs for all gas customers;
- ⇒ Minimising any adverse impact of changes to the connections policy on network tariffs in the short and medium term; and
- ⇒ Ensuring that connection charges provide an appropriate signal of the costs of connections to shippers and consumers;
- ⇒ Retaining economic criteria for the selection of expansion projects with which to proceed in order to avoid uneconomic development;
- ⇒ Treating connections consistently through time, in order that similar customers connecting at different times do not face arbitrarily different charges;

3. GUIDING PRICIPLES OF CONNECTION CHARGES

This section sets out the key principles that govern Bord Gais's connection charging methodology. These include:

- ⇒ Connection charges should encourage the connection of new loads to the network in an efficient manner:
 - Connections are designed based on a least cost solution and any excess costs should be reflected in connection charges payable;
 - Economic test ensures general tariff payers are not unduly burdened by uneconomic connections;
- ⇒ Connection charges are designed to ensure that future transportation tariffs paid by the customer recover residual connection costs in the medium term:
 - Recovery of connection costs is split between upfront charges, supplemental charges based on an economic test and tariffs;
- ⇒ Customers with similar capacity requirements should face similar connection charges subject to considerations of economic efficiency:
 - Domestic customers should be evaluated consistently across categories and should face similar connection charges;
 - Large customers, that could have a significant impact on the network, should pay full connection costs upfront to incentivise location near the network;
- ⇒ Connection charges should reflect the differential life of customers:

- Commercial customers typically do not have the same longevity as domestic customers and therefore should be evaluated over a shorter time horizon;
 - Certain types of I&C customers have a longer lifetime than a typical I&C customer and therefore should be evaluated over a longer time horizon (e.g. schools, prisons, hospitals, etc.);
- ⇒ Connection charges should aim to treat similar classes of customers equitably through time regardless of when they connect to the network (some standard cut-off criteria may be set for practical reasons);
- ⇒ Investment appraisal methodology should take into account appropriate recovery of costs related to upstream assets utilised by new connections;
- ⇒ Connection charges should be designed to facilitate easy to understand quotations for the customer without excessive administration for Bord Gais.

4. CATEGORISATION OF CUSTOMER TYPES

For the purposes of this connection policy, two distinct customer types are considered:

- ⇒ **Industrial & Commercial customers:** three types of industrial and commercial customers are considered:
- **Large I&C customers:** these are defined as loads with both annual consumption of greater than 260GWh and a connection pressure of 16 barg or above¹;
 - **Medium and small I&C customers:** these are defined as commercial enterprises who are not Large I&C customers, but whose primary use of gas is non-domestic;
 - **Institutional I&C customers:** these are defined as customers who are not domestic but who, as a result of their load characteristics, are likely to remain connected to the network for a longer period of time than a typical commercial enterprise. Examples of such customers might include schools, hospitals, and prisons; and
- ⇒ **Domestic customers:** these are defined as those customers whose primary use of gas is domestic.

Business Parks will be treated as either Medium & Small I&C customers or Large I&C customers depending on their specific load characteristics. To facilitate the commencement of works for the provision of gas infrastructure to Business Parks before the relevant connection agreements are signed, Bord Gais Networks will accept a bond covering the value of preliminary works to be undertaken in relation to the connection. Preliminary works covered will include wayleave acquisition, environmental studies, planning and design but not construction or material procurement. The form of such a bond will be in line with Bord Gais's published financial security policy.²

For the purposes of determining the network tariffs payable for newly connecting loads, the following principle (based on the licence definitions of the transmission and distribution businesses) will be applied:

¹ The 16 barg relates to the off-take pressure downstream of the AGI.

² Bord Gais Approved Financial Security Policy No. FS01 (CER/05/041)

- ⇒ Customers will be liable for **transmission tariffs only** if their load is connected at 16 barg or above; and
- ⇒ Customers will be liable for both **transmission and distribution tariffs** if they are connected below 16 barg.

The following sections outline in further detail the treatment of each of the categories listed above.

5. I&C CONNECTIONS

5.1 Large I&C Customers

Large I&C customers are defined as those with loads with annual consumption of greater than 260GWh and a connection pressure of 16 barg or above.

For these customers, a deep connection policy will apply.

Connecting Large I&C customers to the network typically involves significant costs. Where these customers decide to locate in terms of proximity to the network can result in substantial connection and reinforcement costs. If these costs are not fully recovered through connection charges, it can lead to an adverse impact on the level of overall tariffs. Therefore, to protect general tariff payers from the decisions of large users and to provide an incentive for large users to locate near the network, it is proposed that these customers will be required to make payments equal to the full pipeline and Above Ground Installation (AGI) capital costs attributable to meeting the load and pressure requirements of the facility in question. Such costs will include the present value of any attributable upstream (deep) reinforcement costs.

A refund mechanism will operate where other new loads benefit subsequently from the deep reinforcements built to meet the load requirements of the new facility. The refund mechanism could become increasingly burdensome to administer as the use of reinforcements becomes less clear and more remote. Therefore, the mechanism will contain a remoteness limit beyond which there is no refund, and a time limit for refunds of 5 years. The refund mechanism will be included as part of the Large Network Connection Agreement for Large I&C Customers.

This approach is similar to that currently in place for loads with a choice of connection location. The concept of choice of location will no longer apply under the proposed new connection policy.

In relation to Large I&C loads, Bord Gáis Networks will require the connecting party to enter into a Large Network Connection Agreement. This agreement will capture all of the commercial issues surrounding the connection including, among others, terms relating to the construction, payment (including phasing), and financial security. For such Large Connections on the network, there will normally be an AGI lease entered into between the customer and Bord Gáis Networks. The terms of this lease will give Bord Gáis Networks a lease of the lands for the purpose of the construction, use and maintenance of an Above-Ground-Installation in connection with the supply and transmission of natural gas.

The phasing of payments under the Large Network Connection Agreement will be as follows:

- ⇒ 10% of the total will become payable on conclusion of the agreement;
- ⇒ 30% of the total will become payable upon receipt by Bord Gáis Networks of the materials for the construction of the connection;
- ⇒ 40% of the total will become payable upon mechanical completion of the connection; and
- ⇒ The remainder will become payable upon receipt by Bord Gáis Networks of the final invoices from its suppliers in relation to the connection.

For Large I&C customers, Bord Gáis Networks will enter into a Large Network Connection Agreement with any party which fulfils the necessary financial criteria including Shippers, End Users, developers etc. It is envisaged that a standard template for this agreement, approved by the Commission following consultation, will be available from Bord Gáis' website.

Bord Gáis Networks will apply its published financial security policy to parties seeking connections.

5.2 Medium and Small I&C customers

These customers are defined as commercial enterprises who are not Large I&C customers (i.e. if their annual consumption is lower than 260GWh or their connection pressure is lower than 16 barg), but whose primary use of gas is non-domestic.

For Medium and Small I&C customers, the customer contribution in relation to a connection would include two components:

- ⇒ A standard contribution; and
- ⇒ A supplemental “economic test” contribution.

All Medium and Small I&C customers will be required to make a *standard contribution* of 30% of the estimated full pipeline and ancillary equipment (including AGI) capital costs attributable to meeting the load and pressure requirements of the facility in question including the present value of any attributable upstream (deep) reinforcement costs. For loads with an annual consumption of greater than 57.5GWh (threshold for Large Daily Metered customers) and for loads less than or equal to 57.5GWh requiring investment in transmission assets to facilitate the connection, the standard contribution will be based on both transmission and distribution costs.³ For loads with annual consumption of less than or equal to 57.5GWh and not requiring investment in transmission assets, the standard contribution will be based on distribution costs only. (See the flow diagram on the next page)

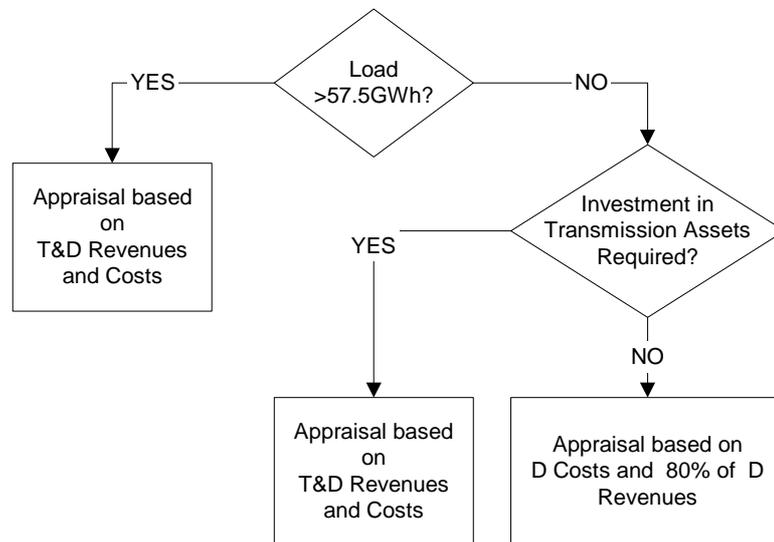
In addition, Bord Gáis Networks would assess whether a *supplemental “economic test” contribution* is required.

The supplemental “economic test” contribution will consider the present value of the full connection cost estimate (as defined above plus operating costs, but less the standard 30% contribution) against the present value of the tariff revenue attributable to the facility. The

³ For the avoidance of doubt, this is not intended as an alternative definition of distribution and transmission connection. Rather, it is intended to ensure that *de minimis* transmission costs and revenues are not considered unnecessarily

present value in both cases will be evaluated over a 7-year time horizon and using Bord Gáis Networks’ regulated rate of return as the discount rate. The 7-year appraisal horizon is considered appropriate to reflect an average life of a typical I&C connection and is consistent with the methodology used in the existing connection policy. Extending the appraisal horizon will defer the time when customers start to contribute to the network (i.e. existing customers will have to wait longer to receive any shared benefits in the form of lower tariffs from the added load). The purpose of the supplemental “economic test” is to provide a location signal to Medium and Small I&C customers who are not required to pay all connection costs upfront.

For loads with an annual consumption of greater than 57.5GWh and for loads less than or equal to 57.5GWh requiring investment in transmission assets to facilitate the connection, the economic test will consider transmission and distribution costs against transmission (entry and exit) and distribution tariff revenues. For loads less than or equal to 57.5GWh not requiring investment in transmission assets, only distribution costs and 80% of distribution tariff revenues will be considered. The diagram below illustrates the methodology for the economic test.



The purpose of including all relevant transmission costs in the economic test is to ensure that the existing customers are not burdened by the costs directly attributable to new connections.

The use of the 80% factor in relation to distribution revenues ensures that new loads served using mainly existing distribution spine main assets provide some remuneration to these assets. This is consistent with the investment appraisal principles for network extensions connected to an existing distribution spine main in the old connection policy.

Where the present value of projected revenues is greater than or equal to the present value of the cost estimate then no supplemental contribution will be required. However, where the present value of revenues is lower than that of costs, the connectee will be required to make a supplemental contribution to the extent required to bring the Net Present Value of the appraisal to zero.

The actual connection costs, over and above the standard contribution and any supplemental economic test contribution, will be recovered through general tariff payments.

5.2.1 Cost of Connection Less Customer Contribution >€250,000

Where the total cost of the connection less the customer contribution paid is more than €250K, a Large Network Connection Agreement will be required. As for Large I&C loads, this Agreement will capture all of the commercial issues surrounding the connection including, among others, terms relating to the construction, payment, and financial security. For such Large Connections on the network, there may also be an AGI Lease entered into between the customer and Bord Gáis Networks.

Customers requiring a Large Network Connection Agreement will be required to commit to capacity purchases for a sufficient term to ensure recovery of the connection costs over and above the standard and supplemental economic test contribution. The volume and duration of capacity bookings required will be defined by Bord Gáis Networks on the basis of the load profile requirements identified by the customer in their formal connection application. The requirement to commit to these capacity purchases will form part of the connection agreement.

The Large Network Connection Agreement will, in turn, refer to Bord Gáis Networks' published financial security policy. Financial security will be required to cover the construction period and the period over which the commitment to purchase capacity is made.

Since the initial term for which a customer will be required to commit to capacity purchases is set based on Bord Gáis Networks' published tariff (as approved by the Commission) at the time of the connection appraisal, the outstanding liability under the connection agreement will be affected by subsequent changes in the tariff. Therefore, for the purposes of determining any outstanding liability under the connection agreement, an annual reconciliation of the tariff revenue anticipated at the time of connection appraisal to the actual tariff revenue will be performed.

If the anticipated tariff revenue fails to materialise in any one year of the capacity booking as a result of an exit capacity transfer, the revenue shortfall will be made up by a drawdown of the financial security provided under the connection agreement.

Bord Gáis Networks will enter into a Large Network Connection Agreement with any party which fulfils the necessary financial criteria including Shippers, End Users, developers etc. It is envisaged that a standard template for this agreement, approved by the Commission following consultation, will be available from the Bord Gáis' website.

5.2.2 Cost of Connection Less Customer Contribution ≤€250,000

For all other Medium and Small I&C customer connections where the total cost of connection less the customer contribution paid is less than or equal to €250K, there will be an I&C Network Connection Agreement. This agreement will detail all of the relevant commercial terms relating to the connection and these will include terms relating to the construction and payment. Financial security related to connection costs will not be required for these connections⁴. Again, it is envisaged that a standard template for this agreement, approved by the Commission, will be available from the Bord Gáis' website.

⁴ However, Bord Gais' published financial security requirements related to general tariff payments will apply.

For Large Daily Metered and Daily Metered customers, a *de minimus* level of capacity will be set in the Capacity Register for the term required to pay back the outstanding connection costs. The *de minimus* level of capacity will be based on the projected load profile provided by the customer and used in the connection appraisal. For Non-Daily Metered customers, connection appraisal will be based on the load requirements identified by the customer in their formal connection application and no *de minimus* level of capacity will be set in the Capacity Register (see Annex 3). For the avoidance of doubt, no annual reconciliation to account for changes in the level of general tariffs will be performed for customers where the total cost of connection less the customer contribution paid is less than or equal to €250K.

Payments related to all Medium and Small I&C customer connections will fall due prior to the commencement of connection works.

5.3 Institutional I&C customers

Institutional I&C customers are defined as those who are not domestic but who, as a result of their characteristics, are likely to remain connected to the network for a longer period of time than a typical commercial enterprise. Examples include schools, hospitals and prisons. A comprehensive list of institutional customers is included in Annex 2.

For Institutional I&C customers where the total cost of connection less the customer contribution paid is less than or equal to €250K, the calculation of the standard contribution is identical to that for Medium & Small I&C loads (i.e. a combination of a 30% payment and, potentially, a supplemental contribution based on the economic test). For these customers, the supplemental contribution is calculated as for Medium & Small I&C loads, save that the NPV will be calculated over a 20-year period. Based on a lower risk profile of Institutional I&C customers, no capacity booking and no financial security will be required.

For Institutional I&C connections where the cost of connection less customer contribution is greater than €250K and, hence, a Large Network Connection Agreement is required, connection appraisal will be identical to that for Medium and Small I&C loads, i.e. using a 7-year appraisal horizon, and there will be a requirement to provide a financial security and commit to capacity purchases.

5.4 Impact of changes to current policy related to I&C customers

In relation to the I&C connection policy the key impacts identified are likely to be as follows:

- ⇒ The policy no longer relies on the previously applied “choice of location” criterion, which should make determining the applicable contribution easier and more transparent both for customers and for Bord Gáis Networks;
- ⇒ The policy no longer makes a distinction between transmission and distribution connections – again, making it more transparent to customers and simpler to implement;
- ⇒ Based on an analysis of the number of connections in 2003/4, the impact on short-term tariff levels of the change in the criterion for determining the applicable contribution alongside the application of 100% and 30% contribution levels should be minimal but

should lead to long-term benefits as it should encourage more customers to connect to the network; and

- ⇒ The policy should generally encourage the connection of loads to the network where the connection is economically efficient – the number of loads to which the 100% contribution level applies would be reduced.

6. DOMESTIC CONNECTIONS

Domestic connections consist of four separate connection classes which we consider within this policy:

- ⇒ One-off housing;
- ⇒ New housing;
- ⇒ Non-gas estates; and
- ⇒ Local authority premises.

For all classes of domestic connection, part of the connection charge will consist of a *standard domestic connection charge*. The standard domestic connection charge is a charge that will be set by Bord Gáis Networks and approved by the Commission. It is currently proposed that this charge be set at the level of €20 (plus VAT) per connection, and that it be reviewed and reset annually.

A number of agreements will be developed for approval by the Commission setting out standard terms in relation to domestic connections and new developments. The agreement may detail terms relevant to the construction of the connection along with any other relevant commercial terms. The agreement will be concluded with the party requesting the connection, be that a Shipper, Supplier, developer, customer, etc. Again, it is envisaged that standard agreements will be available from the Bord Gáis' website.

Below we discuss in more detail the approach in relation to each of these domestic customer classes.

6.1 Domestic connections: one-off housing

One-off housing connections are those within the existing gas area (i.e. an existing house where no extension of main is required) and where no new housing development is taking place.

All loads with an expected annual consumption of up to 73,250 kWh will be liable for the standard domestic connection charge (€20 plus VAT) for the first 15 metres of service pipe. Customers requiring a service connection (with no gas mains extension) of greater than 15 metres will be required to pay an incremental fixed charge per metre (currently €32 plus VAT per metre) in addition to the standard connection charge. This is consistent with the charging methodology for one-off connections under the old policy. The length criteria and the fixed incremental charge per metre will be reviewed and reset periodically.

For loads with an expected annual consumption above 73,250 kWh, the connection charge will be the greater of:

- ⇒ The standard domestic connection charge; and
- ⇒ The extent to which the present value of the full connection capital and operating costs outweighs the present value of the distribution tariff revenue attributable to the load both over a twenty year time horizon, and using Bord Gáis Networks' regulated rate of return as the discount rate.

In all cases, payment would be required prior to the commencement of work on the connection.

6.2 Domestic connections: new housing

Connections to new housing developments are commissioned by housing developers, normally via an infrastructure agreement that commits the developer to ensure that houses in the development are connected to natural gas.

For new housing connections, the developer contribution in relation to a connection will include two components:

- ⇒ the standard domestic connection charge in relation to each connection; and
- ⇒ A supplemental “economic test” contribution.

The *supplemental “economic test” contribution* will consider the present value of the full connection costs (the full pipeline capital and operating costs directly attributable to the housing development, less the total of standard contributions) against the present value of 80% of the distribution tariff revenue⁵ attributable to the facility, both over a twenty year time horizon and using Bord Gáis Networks' regulated rate of return as the discount rate. For the purposes of the revenue component of the economic test, standard assumptions on the annual consumption of different types of domestic property will be used. These assumptions will be reviewed periodically and agreed with the CER. Current assumptions for the annual consumption levels of different types of domestic property are set out in Annex 7.

Where the present value of revenues is greater than or equal to the present value of costs then no supplemental contribution will be required. However, where the Net Present Value is negative, the developer will be required to make a supplemental contribution to the extent required to bring the Net Present Value to zero.

Payment will be required in advance of work commencing on the connection.

⁵ The use of the 80% factor in the economic test ensures that 20% of the revenue from new extensions of the distribution network is allocated to the remuneration of existing spine main assets.

The table below provides a worked example of the calculation of charges for a housing development with 10 meter connections.

Present value of 80% of Distribution Tariff Revenues	10,987	[1]
Present Value of Standard Contribution	2,200	[2] = 220 * 10
Present Value of Costs (Capex + Opex)	-14,687	[3]
Net Present Value	-1,500	[4]
Supplemental "Economic Test" Contribution	1,500	[5] = -[4], if [4]<0, otherwise 0
Summary of Contribution Payable		
Standard Contribution	2,200	[6] =[2]
Supplemental "Economic Test" Contribution	1,500	[7] = [5]
Total Contribution Payable	€ 3,700	[8] = [6]+[7]

6.3 Domestic connections: non-gas estates

Non-gas estates are areas of existing housing estates outside the current gas area (i.e. they are not served by an existing mains pipeline) requesting connection to the gas network. The connection of non-gas estates requires investment in both new mains pipelines and, over time, new service pipes, meters, etc. (as the penetration of gas into the estate increases).

Enquiries in relation to the connection of non-gas estates will be considered from both residents associations and from individuals within the estate. However, the design of the local estate network, used for the purposes of deriving a connections quote, will be that which represents least cost optimal grid design for the estate and any appropriate contiguous areas as a whole rather than for individual connections.

The connection charges for the initial gas connection offers and for any premises connecting within 10 years of the initial offers will consist of two elements:

- ⇒ The standard domestic connection charge in force at the time; and
- ⇒ A supplemental charge which will apply to any user in the estate.

For connections after the 10th year of the initial connections, the supplemental connection charge may be reduced.

The purpose of the supplemental charge is to recover the cost of mains extension from all members of the estate connecting to the network on an equitable basis, while the standard charge (€220 + VAT) is intended to contribute to the cost of meter and service pipe required for each connection.

The supplemental charge applicable in years 1-10 would be calculated in two stages.

First, the difference between the present value of the full capital and operating costs required to expand the mains network to the non-gas estate and the present value of the distribution tariff

revenue attributable to the estate once the supplemental charge has ceased to apply (i.e. in years 11-20 as revenues for years 1-10 are used to pay for the meter and service costs) will be calculated, both over a twenty year time horizon and using Bord Gáis Networks' regulated rate of return as the discount rate.

The tariff revenue attributable to the estate will depend on the following standard assumed penetration assumptions:

- ⇒ **Initial connection take up:** greater than or equal to 20% of houses; and
- ⇒ **Annual connection take up for years 1-10:** 5% of houses per annum.

Again, standard assumptions on annual consumption would be used. These assumptions will be agreed with the CER. Our initial proposals for these assumptions are set out in Annex 7.

Second, this difference between the present value of costs and revenues will be divided by the expected total number of connected premises at the end of the initial 10 year period (based on the assumption of a final connection take up of 70%). A fixed supplemental charge will then be calculated such that it would, given the initial take up and growth assumptions, generate revenue equal to this present value difference.

The table below provides a worked example of the calculation of charges for a non-gas estate with 80 houses.

Present value of mains investment cost	€75,000	[1]
Initial take up (\geq 20% of total customers)	16	[2]
Estimated final take up (70% of total customers)	56	[3]
Present value of expected distribution tariff revenue after initial 10 year period (i.e. in years 11-20)	€28,000	[4]
Excess of cost over expected revenue	€47,000	[5] = [1] - [4]
Present value of supplemental charge per customer	€839	[6] = [5] / [3]
Fixed supplemental charge per customer	€1,026	[7] = [6] * PV factor ⁶
Standard domestic connection charge (covers meter and service)	€220	[8]
Cost for individual connection (excl. VAT) during years 1-10	€1,246	[9] = [7] + [8]

The figures above do not include inflation.

While enquiries will be dealt with from individuals, work to connect the non-gas estate will only commence when the initial take-up requirement has been reached (i.e. 20 % of customers on the estate must formally commit – including payment of requisite contribution in advance – to connect to the network). The required minimum number (20%) of contributions must be lodged with Bord Gais within 4 months of quotation / offer to the residents in order for the project to proceed. If the minimum is not achieved after 4 months all contributions will be returned. The details of the process to be followed will be made available through the Bord Gais website and provided to customers in writing upon request.

⁶ The PV factor is the factor used to derive a supplemental charge which, if fixed over years 1-10, results in a present value supplemental charge equal to that required.

6.4 Domestic connections: Local authority premises

New local authority developments, or local authority developments where conversion to gas of 100% of consumers is taking place as part of a single conversion project requiring mains extension, will be treated as new housing developments for the purposes of this connection policy.

Local authority developments requiring mains extension where fewer than 100% of consumers will convert to gas, or where the conversion will not take place as part of a single conversion project, will be treated as non-gas estates for the purposes of this connection policy.

Local authority conversion projects where no mains extension is required will be treated as one-off domestic connections for the purposes of determining applicable connection charges.

6.5 Impact of changes to policy related to domestic customers

The changes relating to domestic customers defines a clear policy in a number of areas in which the existing policy is silent (e.g. non-gas estates) and harmonises certain charges across domestic connection types.

The policy for non-gas estates will provide arrangements by which realistic customer connections offers can be made on an equitable basis through time, based on a network design which will be efficient from the point of view of the totality of likely future estate load.

As with the changes to the I&C policies, the changes for domestic connections should make it easier for customers to determine the connection charges which are likely to be applicable. It is not envisaged that the changes would lead to any adverse impact on network tariffs in the short term but should generally benefit network users in the long term.

7. MIXED CONNECTIONS

7.1 Mixed developments

There are some new developments which will contain a mixture of I&C and domestic sites.

In the case of such developments, the developer will face charges calculated as follows:

- ⇒ A standard contribution; and
- ⇒ A supplemental “economic test” contribution.

The *standard contribution* will be the sum of charges relating to the number of domestic connections and the proportion of the site peak load which will be from I&C customers, calculated as follows:

- ⇒ The charge relating to each domestic connection will be the standard domestic contribution charge (i.e. currently proposed to be €220 + VAT); and

- ⇒ The charge relating to I&C load will comprise two elements:
- For capital cost which cannot be directly attributed to any customer (e.g. feeder main), the percentage of the total projected development peak load which will be from I&C sites multiplied by the standard Medium & Small I&C contribution of 30% of the full pipeline and ancillary capital equipment (including AGI) capital costs attributable to meeting the requirements of the development in question including the present value of any attributable upstream (deep) reinforcement costs; and
 - For capital cost which can be directly attributed to particular customers (e.g. service pipes, meters, etc.), 30% of the relevant pipeline and ancillary equipment capital costs.

The *supplemental “economic test” contribution* for the Medium & Small I&C loads will consider the present value of the full connection costs attributable to these customers against the present value of 80% of the distribution tariff revenue attributable to the facilities for 7 years, using Bord Gáis Networks’ regulated rate of return as the discount rate. The full connection costs attributable to Medium & Small I&C customers will be calculated as:

- ⇒ the directly attributable capital costs and the relevant proportion (based on contribution to peak load) of other capital costs which cannot be directly attributed (e.g. feeder main); plus
- ⇒ Attributable operating costs; minus
- ⇒ the standard Medium & Small I&C contributions as calculated above.

The *supplemental “economic test” contribution* for the domestic loads will consider the present value of the full connection costs attributable to these customers against the present value of 80% of the distribution tariff revenue attributable to the facilities for 20 years, using Bord Gáis Networks’ regulated rate of return as the discount rate. The full connection costs for domestic customers will be calculated as:

- ⇒ the full capital pipeline and ancillary capital equipment capital and operating costs of the development; minus
- ⇒ the full connection costs attributable to Medium & Small I&C customers; minus
- ⇒ the standard domestic contributions as calculated above.

Across both tests, where the present value of revenues is greater than or equal to the present value of costs then no supplemental contribution will be required. However, where the NPV is negative, the developer will be required to make a supplemental contribution to the extent required to bring the NPV to zero.

Where there are a number of developers on a site, the shared costs (i.e. those relating to more than one developer) will be attributed on the basis of peak load.

The table below provides an example of the calculation of connection contributions for a mixed development.

Mixed Development	Domestic	I&C 1	I&C 2	Total	Ref.
No. Customers	283	1	1		[1]
Capacity (MWh/pk-day)	36	2	27	65	[2]
Capex					
Feeder Main (allocated based on capacity)	181,128	8,233	137,501	326,862	[3] = Total Main Cost x % Capacity
Specifically Attributable	155,582	4,786	13,631	173,999	[4]
Total Capex	336,710	13,019	151,132	500,860	[5] = [3] + [4]
Standard Contribution	€220	30%	30%		[6]
Present Value of Standard Contribution	62,260	3,906	45,340	111,505	[7] = [1] * [6] for Domestic, [7] = [5] * [6] for I&C
Present Value of 80% of Distribution Revenues	472,020	9,478	150,168	631,666	[8]
Present Value of Costs (Net Capex + Opex)	-425,064	-13,864	-154,231	-593,158	[9]
Net Present Value	109,216	-480	41,277	150,013	[10]
Supplemental "Economic Test" Contribution	0	480	0	480	[11] = -[10], if ([10])<0, otherwise 0
Summary of Contribution Due					
Standard Contribution	62,260	3,906	45,340	111,505	[12] = [7]
Supplemental "Economic Test" Contribution	0	480	0	480	[12] = [11]
Total Contribution Due	€62,260	€4,386	€45,340	€111,986	

7.2 Mixed non-gas estates

For a mixed non gas estate, confirmed Medium & Small I&C loads will face charges calculated as follows:

- ⇒ A standard contribution; and
- ⇒ A supplemental “economic test” contribution.

The *standard* contribution will include two components:

- ⇒ For capital cost which cannot be directly attributed to the customer (e.g. feeder main), the percentage of the total projected development peak load from confirmed I&C sites multiplied by the standard Medium & Small I&C contribution of 30% of the full pipeline and ancillary equipment (including AGI) capital costs attributable to meeting the requirements of the estate in question including the present value of any attributable upstream (deep) reinforcement costs; and
- ⇒ For capital cost which can be directly attributed to the customer (e.g. service pipes, meters etc.), 30% of the relevant pipeline and ancillary equipment capital costs.

The *supplemental “economic test” contribution* for the Medium & Small I&C loads will consider the present value of the full connection costs attributable to these customers against the present value of the distribution tariff revenue attributable to the facilities for 7 years, using Bord Gáis Networks’ regulated rate of return as the discount rate. The full connection costs attributable to Medium & Small I&C customers will be calculated as:

- ⇒ the directly attributable capital costs and the relevant proportion (based on contribution to peak load) of other capital costs which cannot be directly attributed (e.g. feeder main); plus

- ⇒ Attributable operating costs; minus
- ⇒ the standard Medium & Small I&C contributions as calculated above.

As with domestic non-gas estates, for domestic customers it is proposed that the connection charges will consist of two elements:

- ⇒ The *standard domestic connection charge*; and
- ⇒ A *supplemental charge* which will apply to any user in the estate connecting within 10 years of the initial non-gas estate connection offers.

The supplemental charge will then be calculated as for a domestic non-gas estate, save that for appraisal purposes the capital costs required to extend mains network to the non-gas estate will exclude the portion attributable to Medium & Small I&C customers.

Any Medium & Small I&C loads which were not confirmed at the time of the initial connections but which subsequently connect during the 10-year period be charged a supplemental connection charge (in addition to the standard I&C charge of 30% based on their specific meter and service costs). The supplemental connection charge will be calculated as follows:

$$\Rightarrow \text{Domestic Supplemental Charge} \times \text{I\&C Specific Capacity} / \text{Average Domestic Capacity}$$

The table below provides an example of the calculation of connection contributions for a mixed non-gas estate.

Mixed Development	Domestic	I&C 1 (Confirmed)	I&C 2 (Confirmed)	I&C 3 (Not Confirmed)	Ref.
No. Customers	80	1	1	1	[1]
Take-up %	70%	100%	100%	0%	[2]
Total No. Customers	56	1	1	0	[3] = [1] * [2]
Capacity (kWh/pk day)	7,527	1,320	1,650	0	[4]
Capacity (%)	72%	13%	16%	0%	[5]
Capex					
Feeder Main	100,381	17,608	22,011	0	[6] = Total Main Cost x [5]
Specifically Attributable		4,786	4,786	0	[7]
Total Capex	100,381	22,394	26,797	0	[8] = [6] + [7]
Standard Contribution	€220	30%	30%		[9]
Present Value of Revenues	61,731	9,625	12,031	0	[10]
Present Value of Opex	-8,743	-845	-845	0	[11]
Present Value of Capex ¹	-100,381	-15,676	-18,758	0	[12]
Net Present Value	-47,392	-6,896	-7,571	0	[13] = [10] + [11] + [12]
Supplemental Contribution per customer	1,094	6,896	7,571		[13] = for IC: if ([12])<0, -([12]), otherwise 0; for Domestic:-([12]) / [3] * PV Factor
Contribution Due per customer					
Standard Contribution	220	6,718	8,039	0	[14] = 9 for Domestic, [8] * [9] for IC
Supplemental Contribution	1,094	6,896	7,571	0	[15] = [13]
Total Contribution Due	€1,314	€13,614	€15,610	€0	[16] = [14] + [15]

¹ For I&Cs, Capex is net of standard contribution

7.3 Impact of changes

The changes to the policies in relation to mixed developments and mixed non-gas estates will fill gaps in the previous arrangements, and hence increase transparency for customers, and ensure that customers in such situations can also benefit from the wider changes discussed in this document.

8. CONNECTION OF NEW TOWNS

The economic viability of new town connections will be determined by the economic test. In carrying out economic test appraisals of new town connections, or regional groups of such towns, the investment appraisals will compare:

- ⇒ the present value of full pipeline and ancillary capital equipment (including AGI) and operating costs (both transmission and distribution) attributable to meeting the projected load. Capital costs include local authority charges associated with road openings. The present value of any attributable upstream (deep) reinforcement costs will also be included; and
- ⇒ the present value of, in all cases, 100% of distribution and transmission (entry and exit) tariff revenue attributable to the projected load.

In relation to evaluating potential new town load, only new housing and I&C loads will be considered. All existing housing will be treated as non-gas estates in accordance with Section 6.3.

To reflect the relatively lower risk of the diversified load base represented by a new town and the broader opportunities for growth of load, the present value appraisal for both domestic and I&C customers will be carried out over a 25-year period (previously 20 years for domestic and 7 years for I&Cs), and using Bord Gáis Networks' regulated rate of return as the discount rate. The details of a new town appraisal are shown in Annex 6.

As an option, it will be possible to appraise a new town either on its own or as part of a regional group of towns. In order for the connection of a new town or a regional group of new towns to proceed, the present value of the revenues has to exceed the present value of the costs as determined above.

As a group of towns can be appraised as a single project, it will be possible for some towns that would not otherwise be economically viable on their own, to become viable when considered as part of a regional group. Whether or not a town is included in the group will depend on a number of factors including: relative proximity to the network, size and load growth potential, connection costs involved and a town's ability to share the same operating costs with adjacent towns. For example, a town which does not have a sufficient load could be included into the group if it is located on route to a town which does have a significant load potential. However, in all cases the relative contribution of a town to the group of towns is the ultimate determining factor, i.e. a town with a higher present value of revenues less present value of costs will be given priority. The total group must work within the terms of the connection policy, i.e. the present value of total revenues less total costs must be positive.

Whether new towns are appraised individually or as part of a group, they would be expected to lead to a short-term increase in tariffs. This is due to the fact that connection of new towns is typically associated with a high upfront investment and low initial load which can take a number of years to build up. However, as the load in newly connected towns builds up, it will push general tariffs down in the longer term, hence benefiting all network users.

This policy change will lead to an increase in the number of towns which will meet the economic criteria. Towns which are likely to meet the economic criteria are those which are relatively close to the network, or which have large loads, or where there is a supplemental contribution available.

9. TREATMENT OF COSTS OF SPARE PIPELINE CAPACITY

In certain cases, it will be appropriate from the point of view of the efficient and economic development of the pipeline network to design extensions in anticipation of future load not yet connecting to the system (i.e. to design pipelines with additional capacity than that strictly required by the currently connecting parties). This avoids more costly stand-alone reinforcement at a future date.

For transmission pipelines, the approval of such projects will be dealt with on a case by case basis with the Commission. For distribution pipelines, the proposed operational criteria, which will provide a framework for determining when such network development is appropriate, are as follows:

- ⇒ the network being extended to new development in areas of future growth;
- ⇒ the network being extended to a new development along route(s) identified as having strategic network reinforcement significance; and
- ⇒ infrastructure being rolled out to Phase 1 of multi-phase developments.

These criteria would be reviewed periodically to ensure that they continue to reflect the developing network.

Customers connecting to the pipeline during the first phase will not bear the incremental costs of the additional capacity in their connection charges. In such a situation, connection charges will be determined with reference to the costs which would have been incurred had the pipeline and associated infrastructure been sized to deal with the specified requirements of the customer connection application for the load connecting immediately. For future developments, the incremental costs of the additional capacity will be included as part of connection appraisal costs.

10. CUSTOMER REQUESTED NON-LEAST COST CONNECTION DESIGN

When determining the design and cost of a connection, the capital and operating cost of the pipeline and associated infrastructure referred to above is intended to refer to the least cost design solution for the connection of the load(s) in question.

In the event that a customer requests a connection to be constructed which is not, in Bord Gáis Networks' view, the least cost approach to connection (given the load type, characteristics and network location), irrespective of the customer type, the connection charge will comprise:

- ⇒ The connection charge as per the least cost approach for the particular customer type; and
- ⇒ 100% of the incremental connection cost over and above the cost of the least cost solution.

For example, a Medium and Small I&C requesting a non-least cost connection will pay 100% for the incremental cost as well as the 30% plus supplemental charge required for the least cost solution.

11. DESIGN CHARGES

For larger connections, a charge will be made to cover the effort required to carry out the initial desktop work required as an input to the initial offer letter.

It is proposed that these charges initially be set as follows:

- ⇒ Loads with annual consumption below 450,000 kWh: no charge
- ⇒ Loads with annual consumption between 450,000 and 22,000,000 kWh: €750 + VAT
- ⇒ Loads with annual consumption above 22,000,000 kWh: €3,750 + VAT.

These charges will be payable when the inquiry form is submitted. The charges will be offset against connection contributions where the customer proceeds with the connection. The levels will be reviewed and reset periodically, with the agreement of the CER.

12. OPPORTUNISTIC NETWORK DEVELOPMENT

In some situations, it will make sense from an efficiency viewpoint for Bord Gáis Networks to undertake work in advance of formal connection enquiries from customers. This may be the case, for example, where a Local Authority or developer are undertaking works in the relevant area and, by working at the same time, Bord Gáis Networks can reduce the cost of trenching or reinstatement.

Such opportunities require Bord Gáis Networks to be able to confirm relatively quickly to the relevant party that connection works can take place in parallel with the other scheduled works. For transmission pipelines, projects will be dealt with on a case by case basis with the Commission. For distribution pipelines, the proposed criteria, which would determine when such development will be considered appropriate, are as follows:

- ⇒ contact with or request from a Local Authority or information from a Developer/Builder or Local Authority development zoning map (or other planning information);
- ⇒ Consistency of project with requirements identified from Distribution Network Capacity Report or strategic network analysis;
- ⇒ the road infrastructure being constructed ahead of residential, commercial or industrial development;
- ⇒ the network being extended to a congested town centre location.

- ⇒ Project capital costs are estimated not to exceed €100k; and
- ⇒ Estimated network extension length does not exceed 2km;

These criteria would be reviewed periodically to ensure that they continue to reflect the developing network. All other distribution projects outside the criteria specified above will be brought to the Commission for approval on a case by case basis.

For future development-related loads connecting to the network, the costs associated with the relevant opportunistic development projects will be included as part of connection appraisal costs relevant to that part of the network.

13. TRANSITION TO THE NEW CONNECTION POLICY

From the date the Commission directs this policy to come into force, all new connection enquiries will be dealt with under the new policy.

For connection enquiries already in progress at the implementation date (i.e. where there has been formal acceptance of a valid quote but the final completion of the physical connection has not taken place), transition arrangements will apply. These transition arrangements are intended to reduce the extent of any adverse impact of the change for any customer that has made a connection application and would face significantly different terms under the old and new policies.

13.1 Customers who would have had higher payments under the old policy

For connection enquiries to which the transition arrangements apply, if the amount due under the new policy would be less than the amount due under the old policy, the payments will be limited to the greater of amounts already paid to Bord Gáis Networks and the amounts which will be due under the new policy.

For example, if an I&C connection would have attracted a 100% upfront payment under the old policy but would only attract a contribution of 30% with no supplemental contribution required under the new policy, then:

- ⇒ If no amounts have been received at the implementation date, the connection contribution will be limited to 30%; and
- ⇒ If 40% has already been paid⁷, no further contribution will be sought.

In this example, the I&C customer will also be required to enter into a capacity booking arrangement to ensure that capacity is reserved at a sufficient level and for a sufficient term to generate a revenue stream equal to the outstanding amount (be it the total cost less 30% or the total cost less the amount already paid). For the avoidance of doubt, this example is only relevant for large connections currently requiring a connection agreement, which envisages the phasing of payments similar to that outlined in section 5.1. For smaller connections, not requiring a connection agreement, the phasing of payments does not apply, i.e. all of the customer

⁷ For large connections, the phased payment schedule outlined in section 5.1 currently applies.

contribution due under the old policy (i.e. 25% plus any supplemental “economic test” contribution based) is payable upfront.

13.2 Customers who would have had lower payments under the old policy

Where an offer has been made and is still valid at the time the new policy comes into effect, if the amount due under the new policy would be greater than the amount due under the old policy, only the amount due under the old policy will be payable.

For example, if a customer has a connection enquiry in progress in relation to which they would have to pay a 25% contribution under the old policy but which, under the new policy, would result in a 30% contribution, then the 25% contribution will continue to hold for that specific enquiry provided the customer exercises their option on their quotation within its valid period.

The principle is intended to apply to any customer who would have had lower payments under the old policy.

ANNEX 1. QUOTATION DETAILS

In any connection quote issued by Bord Gáis Networks, it is proposed that the quote is broken down into the following elements.

For Large I&C customers, and for Medium & Small I&C customers where a Large Network Connection Agreement is required:

- ⇒ Construction
- ⇒ Materials (broken down into main parts, e.g. pipeline, AGI etc.)
- ⇒ Engineering & management
- ⇒ Control & instrumentation
- ⇒ Wayleaves & site acquisition
- ⇒ Site investigations & surveys
- ⇒ Legal costs
- ⇒ Finance charges

For all other connection quotes:

- ⇒ Direct labour
- ⇒ Materials (e.g. mains pipes, service pipes, meters)
- ⇒ Contractor costs (e.g. X metres of pipe installation = €x, Meter installation = €y)
- ⇒ Local authority
 - Road opening licence fee
 - Reinstatement
 - Long term damage

Allowance will also be made for contingency – this will be indicated specifically in individual quotations.

ANNEX 2. INSTITUTIONAL I&C CUSTOMERS

- ⇒ Schools
- ⇒ Third Level Colleges
- ⇒ Hospitals
- ⇒ Prisons
- ⇒ Garda Stations
- ⇒ Stadiums
- ⇒ Airports (airport specific infrastructure only)
- ⇒ Railway Stations
- ⇒ Museums/Heritage Sites
- ⇒ Fire/Ambulance Stations
- ⇒ Army Barracks
- ⇒ Government Buildings
- ⇒ Any other customer classified in this category by Bord Gais Networks and approved by the CER

ANNEX 3. I&C SUMMARY TABLE

Customer Type	Net Connection Cost Threshold (1)	Connection Type	Connection Agreement	Appraisal (yrs)	Contribution	Capacity Commitment (2)	Financial Security
Large I&C (≥ 260 GWh and ≥ 16 barg)	$>$ or $<$ €250,000	LDM	Large Network Connection Agreement	N/A	100%	0%	Yes
Medium and Small I&C (< 260 GWh or < 16 barg)	\geq €250,000	LDM/DM, NDM	Large Network Connection Agreement	7 yrs	30%	70%	Yes
	$<$ €250,000	LDM	I&C Network Connection Agreement	7 yrs	30%	70% (<i>De minimus</i> level)	No
		DM	I&C Network Connection Agreement	7 yrs	30%	70% (<i>De minimus</i> level)	No
		NDM	I&C Network Connection Agreement	7 yrs	30%	0%	No
Institutional I&C (< 260 GWh or < 16 barg)	\geq €250,000	LDM/DM, NDM	Large Network Connection Agreement	7 yrs	30%	70%	Yes
	$<$ €250,000	LDM/DM, NDM	I&C Network Connection Agreement	20 yrs	30%	No	No

Notes:

(1) Net Connection Costs is the total cost of connection less the customer contribution paid

(2) Capacity commitment covered by financial security and *de minimus* capacity level set in the Capacity Register are based the projected load profile provided by the customer; this load profile is also used in the connection appraisal.

ANNEX 4. CONNECTION CHARGES SUMMARY TABLE

CONNECTION TYPE	CONNECTION CHARGE	APPLICABLE TARIFF ONCE CONNECTED
INDUSTRIAL & COMMERCIAL (I&C) Large I&Cs >16barg, AQ>260GWh	>>Phased Payment = 100% of all capex costs (incl. reinforcement)	Transmission
Medium and Small I&Cs (<16barg, AQ<=260GWh) - AQ > 57.5GWh - AQ <= 57.5GWh, Transmission costs involved - AQ <= 57.5GWh, No Transmission costs involved	>> Standard Contribution (30% of all capex costs, incl reinf); PLUS >>Supplemental "Economic Test" Contribution (appraised over 7 yrs): - based on Transmission and Distribution costs and revenues - based on Transmission and Distribution costs and revenues - based on Distribution costs and 80% of distribution revenues	Transmission & Distribution
Institutional I&Cs (<16barg, AQ<=260GWh) - AQ > 57.5GWh - AQ <= 57.5GWh, Transmission costs involved - AQ <= 57.5GWh, No Transmission costs involved	>> Standard I&C Contribution (30% of all costs, incl reinf); PLUS >> Supplemental "Economic Test" Contribution (appraised over 7 or 20 yrs depending on exposure): - based on Transmission and Distribution costs and revenues - based on Transmission and Distribution costs and revenues - based on Distribution costs and 80% of distribution revenues	Transmission & Distribution
DOMESTIC One-off Housing <=73.2MWh >73.2MWh	>> Standard Domestic Charge of €220 + VAT for the first 15m of service pipe; PLUS >> Incremental Fixed Charge per metre beyond 15m Greater of: >> Standard Domestic Charge of €220 + VAT; and >> Supplemental "Economic Test" Contribution	Transmission & Distribution
New Housing	>> Standard Domestic Charge of €220 + VAT; PLUS >> Supplemental "Economic Test" Contribution: - appraised over 20 yrs, 80% of distribution revenues	Transmission & Distribution
Non-Gas Estates	>> Standard Domestic Charge of €220 + VAT; PLUS >> Supplemental Charge	Transmission & Distribution
MIXED DEVELOPMENTS	>> Domestic: - No. Domestic Connections x Standard Domestic Charge; PLUS - Supplemental "Economic Test" Contribution (appraisal over 20 yrs, 80% of distribution revenues) >> I&C: - Standard I&C Contribution of 30% (mains allocated based on capacity %); PLUS - Supplemental "Economic Test" Contribution (appraisal over 7 yrs, 80% of distribution revenues)	Transmission & Distribution
MIXED NON-GAS ESTATES	>> Domestic: - Standard Domestic Charge; PLUS - Supplemental Charge >> I&C: - Standard I&C Contribution of 30% (mains allocated based on capacity %); PLUS - Supplemental "Economic Test" Contribution	Transmission & Distribution
NEW TOWNS	>> Domestic (appraised over 25 years) - Standard Domestic Charge of €220 + VAT per connection >> I&C (appraised over 25 years) - Standard I&C Contribution of 30% (meter and service costs)	Transmission & Distribution

ANNEX 5. CONNECTION CHARGES COMPARISON

CONNECTION TYPE	CONNECTION CHARGE	
	NEW POLICY	PREVIOUS POLICY
INDUSTRIAL & COMMERCIAL (I&C) Large I&Cs >16barg, AQ>=260GWh	100%	>73.2MWh (<=73.2MWh treated as domestic) Choice of Location: 100% No Choice of Location: 25% + Supplemental "Economic Test" Contribution (7 year appraisal)
Medium and Small I&Cs (<16barg, AQ<260GWh) - AQ > 57.5GWh - AQ <= 57.5GWh, T costs involved - AQ <= 57.5GWh, No T costs invloved	30% + Supplemental "Economic Test" Contribution (7 yr appraisal) - based on T&D costs and revenues - based on T&D costs and revenues - based on D costs and 80% D revenues	Choice of Location: 100% No Choice of Location: 25% + Supplemental "Economic Test" Contribution (7 year appraisal)
Institutional I&Cs - AQ > 57.5GWh - AQ <= 57.5GWh, T costs involved - AQ <= 57.5GWh, No T costs invloved	30% + Supplemental "Economic Test" Contribution (7 or 20 yr appraisal depending on exposure): - based on T&D costs and revenues - based on T&D costs and revenues - based on D costs and 80% D revenues	Choice of Location: 100% No Choice of Location: 25% + Supplemental "Economic Test" Contribution (7 year appraisal)
DOMESTIC One-off Housing <=73,200 kWh and std equipment >73,200 kWh or non-std equipment	€20 + VAT for the first 15m + cost over 15m Greater of: - €20 + VAT (=€250); and - Supplemental "Economic Test" Contribution	€20 + VAT for the first 15m + cost over 15m Greater of: - €20 + VAT (=€250); and - Supplemental "Economic Test" Contribution
New Housing	= [€20 + VAT] x No. Domestic Connections + Supplemental "Economic Test" Contribution: - 20 yr appraisal, 80% of D revenues	=(€150 + VAT) x No. Domestic Connections + Supplemental "Economic Test" Contribution: - 20 yr appraisal, 80% of D revenues
Non-Gas Estates	€20 + VAT (=€250) + Supplemental Charge	N/A
MIXED DEVELOPMENTS Domestic	=[€20 + VAT] x No. Domestic Connections + Supplemental "Economic Test" Contribution (20 yr appraisal, 80% of D revenues)	=(€150 + VAT) x No. Domestic Connections + Supplemental "Economic Test" Contribution (20 yr appraisal, 80% of D revenues)
I&C	30% + Supplemental "Economic Test" Contribution (7 yr appraisal, 80% of D revenues)	100% (choice of location)
MIXED NON-GAS ESTATES Domestic	€20 + VAT (=€250) + Supplemental Charge	N/A
I&C	30% + Supplemental "Economic Test" Contribution	
NEW TOWNS Domestic - New Housing - One-off Housing	Appraised over 25 years €20 + VAT (=€250) per connection N/A (appraised as non-gas estates)	New housing developers contribute any negative NPV New Housing: €150 + VAT (appraised over 20 years) One offs €20 + VAT (appraised over 10 years)
I&C	30% of meter and service costs	25% (appraised over 7 years)

Notes:

T - Transmission; D- Distribution

N/A - No explicit policy

ANNEX 6A. NEW TOWN APPRAISAL TEMPLATE - INPUTS

	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8 - 25
1. DEMAND									
New Housing									
No. Connections per yr up to Yr 10	200								
Volume	15,260 kWh per house								
Load Factor	36%								
I&C (Surveyed Load in kWh)									
<u>Large</u>									
Capacity									
Large 1	350,000								
Large 2	35,000								
Large 3	20,000								
Commodity									
Large 1	75,000,000								
Large 2	7,500,000								
Large 3	4,000,000								
Take-up %	80% of the total load surveyed (approximately) - in this example 2 out of 3								
Large 1	0%	0%	100%	100%	100%	100%	100%	100%	100%
Large 2	0%	0%	0%	0%	0%	0%	0%	0%	0%
Large 3	0%	100%	100%	100%	100%	100%	100%	100%	100%
<u>Medium</u>									
No. customers	15								
Total Capacity	55,000								
Total Commodity	8,000,000								
Take-up %	0%	10%	20%	30%	40%	50%	50%	50%	50%
<u>Small</u>									
No. customers	350,000								
Total Capacity	115,000								
Total Commodity	15,000,000								
Take-up %	0.00%	12.50%	17.50%	20.00%	21.25%	22.50%	23.75%	25.00%	25.00%
2. CONNECTION COSTS (CAPEX in €)									
Distribution									
Feeder & Distribution Main	6,000,000								
<u>Service and Meter</u>									
New Housing	€1,086 per connection								
I&C									
Large	€90,000 for the loads assumed to be connected								
Medium	€150,000 for the total load surveyed (i.e. only the portion related to the take-up % will be included in the appraisal)								
Small	€1,000,000 for the total load surveyed (i.e. only the portion related to the take-up % will be included in the appraisal)								
Transmission									
AGI, etc.	€750,000								
3. CONNECTION CHARGES									
New Housing	€220 per connection								
I&C	30% of service and meter costs								
4. OPERATING COSTS (OPEX)									
Distribution	€140,000 (incl. first response, callout crew and 3rd party damage)								
Transmission	€11,000								
5. TARIFF									
Distribution									
	Capacity Charge								
	= A - B*Ln(PDV in MWh)								
<u>Volume Range</u>	A	B							
0-73 MWh	133.333								
>73-14,653 MWh	118.032	3.432							
>14,653-57,000 MWh	294.8852	42.3256							
>57,500 MWh	36.3645	-							
	Commodity Charge								
	= A - B*Ln(PDV in MWh)								
<u>Volume Range</u>	A	B							
0-73 MWh	0.2537								
>73-14,653 MWh	0.2025	0.0197							
>14,653-57,000 MWh	0.2361	0.0311							
>57,500 MWh	0.0461	-							
Transmission									
<u>Entry</u>									
Capacity	336.727								
Commodity	0.139								
<u>Exit</u>									
Capacity	481.879								
Commodity	0.220								

ANNEX 6B. NEW TOWN APPRAISAL TEMPLATE – RESULTS SUMMARY

	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11 ...	Year 20	Year 21	Year 22	Year 23	Year 24	Year 25
Demand (MWh)																		
<u>Capacity</u>																		
New Housing	0	23	46	70	93	116	139	163	186	209	232	232	232	232	232	232	232	232
Large I&C	0	20	370	370	370	370	370	370	370	370	370	370	370	370	370	370	370	370
Medium I&C	0	6	11	17	22	28	28	28	28	28	28	28	28	28	28	28	28	28
Small I&C	0	14	20	23	24	26	27	29	29	29	29	29	29	29	29	29	29	29
	0	63	448	479	509	540	564	589	612	635	659							
<u>Commodity</u>																		
New Housing	0	3,052	6,104	9,156	12,208	15,260	18,312	21,364	24,416	27,468	30,520	30,520	30,520	30,520	30,520	30,520	30,520	30,520
Large I&C	0	4,000	79,000	79,000	79,000	79,000	79,000	79,000	79,000	79,000	79,000	79,000	79,000	79,000	79,000	79,000	79,000	79,000
Medium I&C	0	800	1,600	2,400	3,200	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000
Small I&C	0	1,875	2,625	3,000	3,188	3,375	3,563	3,750	3,750	3,750	3,750	3,750	3,750	3,750	3,750	3,750	3,750	3,750
	0	9,727	89,329	93,556	97,596	101,635	104,875	108,114	111,166	114,218	117,270							
<i>real prices, €000</i>																		
Revenue																		
<u>Distribution</u>																		
Capacity	0	38	425	440	456	472	480	489	497	506	514	514	514	514	514	514	514	514
Commodity	0	11	113	117	120	124	125	126	128	129	131	131	131	131	131	131	131	131
<u>Transmission</u>																		
Capacity	0	52	366	392	417	442	462	482	501	520	539	539	539	539	539	539	539	539
Commodity	0	3	32	34	35	36	38	39	40	41	42	42	42	42	42	42	42	42
Capex																		
Distribution	-6,000	-362	-367	-257	-245	-245	-230	-230	-217	-217	-217	0	0	0	0	0	0	0
Transmission	-750	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Connection Charges																		
New Housing	0	44	44	44	44	44	44	44	44	44	44	0	0	0	0	0	0	0
I&C	0	43	45	12	8	8	4	4	0	0	0	0	0	0	0	0	0	0
Opex																		
Distribution	0	-140	-140	-140	-140	-140	-140	-140	-140	-140	-140	-140	-140	-140	-140	-140	-140	-140
Transmission	0	-11	-11	-11	-11	-11	-11	-11	-11	-11	-11	-11	-11	-11	-11	-11	-11	-11
Net Cash Flow	-6,750	-321	507	631	685	730	772	803	842	872	902	1,075						
Net Present Value @ ROR (€)	€3,790																	

Note:

The figures presented are for illustrative purposes only

ANNEX 7. STANDARD ASSUMPTIONS ON DOMESTIC CONSUMPTION

Our proposed assumptions in relation to the annual consumption of different domestic properties are set out in the table below.

Type of Housing	kWh
<i>New Housing</i>	
Standard House	15,240
Apartment	9,960
Large House (4+ bed detached)	22,000
<i>Existing Housing</i>	
Standard House (used principally for non-gas estates)	18,000