Commission's Proposals on Transmission Use of System Revenue Requirement and Tariff Structure

1 October 2003 – 30 September 2007

CER/03/144

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1. INTRODUCTION

Under the Gas (Interim) (Regulation) Act, 2002, the Commission for Energy Regulation ("the Commission") is responsible for regulating charges in the natural gas market. This includes charges for gas transmission, distribution and supply to final customers.

The Commission has been conducting a full review of the charging regime for gas transmission and distribution services in time for the gas year starting 1 October 2003. This document sets out the Commission's proposals on the determination of revenues for Bord Gáis Transmission ("BGT") during the four-year period from 1 October 2003 to 30 September 2007. The Commission has published its proposed determination of Bord Gáis Éireann's ("BGÉ") distribution revenues separately.

The document is structured as follows:

- Section 2 outlines the background to the review of gas transmission tariffs;
- Section 3 reviews the determination of allowable revenues for BGT's activities;
- Section 4 sets out the proposed duration and form of the revenue control to apply to gas transmission;
- Section 5 sets out the proposed structure for gas transmission tariffs;
- Section 6 summarises the revenues the Commission is proposing to allow BGÉ for its transmission activities; and
- Section **Error! Reference source not found.** briefly summarises the next steps in this process.

The Commission does not anticipate that there will be major changes to this proposal, although certain matters are specifically identified as being subject to further development prior to finalisation (e.g., the exact form of revenue control formula). The Commission will however consider any anomalies brought to its attention ***no later than Tuesday 8 July 2003***.

Any submissions, preferably in electronic format, should be sent to:

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The Commission may make any comments public and would encourage respondents to do the same. Any information that respondents wish to submit in confidence must be submitted separately and clearly marked as such. The Commission would however prefer public comment wherever practicable.

2. BACKGROUND

Under section 14 (3) of the Gas (Interim) (Regulation) Act, 2002, the Commission may give directions to a pipeline operator in respect of the basis for charges for the transportation of gas through the pipelines of the pipeline operator.

At present, transmission tariffs are determined by BGÉ largely in line with the Ministerial Directives of November 2001.[1]

In its Natural Gas Policy Framework document[2], the Commission identified as one of the key areas of the reform of the gas market arrangements the full review of the charging regime for gas transmission and distribution services in time for the gas year starting 1 October 2003. On 19 March 2003 the Commission published a consultation document entitled, "Transmission and Distribution Tariff Objectives and Principles" (CER/03/060), which invited comments on the framework to apply in the review of charges for gas transportation services.[3] The Commission received a substantive and, in some cases, detailed response to this consultation paper. These responses have been summarised in CER/03/142.

Following the consultation period for the "Transmission and Distribution Tariff Objectives and Principles" document, the Commission held a workshop on 15 May 2003 allowing presentations from industry participants and discussion of the issues concerning the structure of tariffs as well as the determination of allowable revenues. The workshop provided a valuable opportunity for the Commission to learn the views of industry participants and for industry participants to question the Commission on the proposals for transmission tariffs.

2.1. The Commission's Duties and Objectives

In carrying out its functions, the Commission is required to:

1. Secure the continuity, security and quality of supplies of natural gas;

2. Secure that there is sufficient capacity in the natural gas system to enable reasonable expectations of demand to be met;

3. Promote competition in the supply of natural gas;

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1 "General Directive concerning standard service pricing for gas transmission on the Onshore Network", "General Directive concerning standard service pricing for gas transmission between Scotland and the Republic of Ireland" and "General Directive concerning standard service pricing for gas transmission Entry/Exit Inch" *Department of Public Enterprise,* 6 November 2001.

2 Natural Gas Policy Framework, CER/02/83. 19 July 2002.

3 Hereafter referred to as the "T&D Principles paper"

4. Act in a non-discriminatory manner, such that the Commission does not discriminate unfairly between holders of licences, consents and Bord Gáis Éireann (BGÉ);

5. Protect the interests of final customers of gas.

The T&D Principles paper set out the objectives and proposed principles that would guide the Commission's determination of BGÉ's allowable revenues for its transmission and distribution business units. As set out in that paper, irrespective of the specific methodology used to determine revenues and set tariffs, the Commission is keen to ensure that the level of allowed revenue is sufficient to recover prudently incurred operating expenditure and provide a reasonable return on investment, commensurate with the risks faced by BGÉ. Consistent with this principle, the Commission is also keen to ensure that the gas transmission tariff methodology implemented by BGÉ:

- provides correct signals for consumption and investment;
- does not discriminate unfairly between different customer categories; and
- given forecast customer numbers and load, enables BGT to recover no more than the level of maximum revenues allowed by the Commission.

2.2. Methodology

In determining the level of allowable revenues for BGT and the structure of transmission tariffs, the Commission has adopted a similar methodology to that which it adopted in the review of electricity network tariffs. This is a methodology that has widespread use amongst monopoly network regulators throughout Europe. The methodology adopted by the Commission has involved the following sequential elements:

Step 1 is a detailed and extensive review of the operating costs and network assets of BGT. This has comprised the Commission's engineering, accounting and economic consultants conducting a detailed technical, engineering and economic appraisal of BGT's costs including its accounting methodologies, existing assets and future investments, and cost allocation methodology.

Step 2 is a review of operating costs – including network and non-network related costs - against comparator network entities, adjusting for differences including network size and construction, customer numbers and load.

Step 3 involves determining the value of the opening asset base, a rate of return on assets commensurate with the risks faced by BGT, and a review of the reasonableness of the future investment programme, given expectations of demand, customer growth and market developments.

Step 4 entails the determination of an allowable stream of revenues for BGT that are sufficient to cover a prudent level of operating costs and depreciation, and which provide a reasonable return on assets and new investments over the regulatory period.

Step 5 involves the development of a revenue control formula which provides a transparent and predictable way of determining revenues in each year of the control, depending on customer numbers, demand growth, and inflation. The formula also provides a method for incentivising BGÉ to reduce its controllable costs and allows for pass-through of non-controllable costs.

Step 6 is the determination of the structure of transmission use of system and connection charges depending on the costs imposed by different customers on the system and which yields the level of revenues allowed by the Commission.

Steps 1-4 concern determining an appropriate level of allowable revenues, whilst steps 5 and 6 relate to form of the control and the structure of the tariffs. Section 3 describes the Commission's approach to determining the appropriate level of allowable revenues, Section 4 describes the proposed form of regulation, including the revenue control formula, Section 5 describes the Commission's proposed structure for transmission tariffs from which BGT will be able to recover its allowable revenue, and Section 6 sets out the final proposals for BGT's revenue requirements.

3. DETERMINATION OF ALLOWABLE REVENUES AND REVENUE CONTROL PERIOD

Determining an appropriate level of allowed revenues is an important part of the review of transmission tariffs. If allowed revenues are set too high, the company will earn excess profits to the detriment of gas customers and, if set too low, the company will have a reduced incentive to invest. Another issue for consideration is the period over which the revenue control applies and the incentives this provides.

A company's allowable revenues are determined by the following:

- the opening asset value;
- depreciation;
- operating expenditure;
- capital expenditure; and
- the return allowed on assets (i.e., the cost of capital).

The Commission has considered the appropriate level of each of the above components in forming a view on the overall level of allowable revenue for BGÉ's gas transmission business.

3.1. Duration of Revenue Control

The Commission previously consulted on what the length of the regulatory period should be. The Commission is conscious that a longer period would give BGÉ more incentive to achieve efficiency gains, to the ultimate benefit of consumers. On the other hand, uncertainties relating in particular to the transmission business (market opening, the change to capacity booking arrangements and the timing of the development of Corrib) point to a shorter period. The Commission is proposing that a control period of four years for transmission be used. The Commission believes that four years is sufficiently long to provide incentives for productive efficiency whilst constraining the amount of allocative inefficiency that will result from prices and costs diverging.

3.2. Opening Asset Value

3.2.1. Principles

The T&D Principles paper described five alternative approaches to valuing BGÉ's opening assets. More respondents to the consultation paper favoured an Index Historical Cost (IHC) valuation method than any other single method. However, the same number favoured either a Replacement Cost or Optimised Replacement Cost method of asset valuation.

Asset valuations based on replacement costs will be more subjective than an IHC method. This is because a greater element of judgement is required in determining the former and these approaches are, therefore, less objective. The consequence of using a less objective method for asset valuation (i.e., replacement cost methods) is that it can be expected to give rise to more disputes and uncertainty than other more objective methods (eg IHC). Moreover, valuations based on replacement costs are more liable to be unstable than IHC valuations.

The Commission believes that IHC is both a more objective method for valuing assets and produces a more stable level of allowed revenues than replacement cost methods. The Commission also notes that IHC is widely used in other jurisdictions, both within and without Ireland, for setting tariffs of regulated monopolies. Accordingly, the Commission has decided to value BGT's opening assets on the basis of IHC. The index by which BGT's opening assets have been inflated is the Irish Consumer Price Index (CPI).

3.2.2. Practice

3.2.2.1. Interconnectors

During the course of the consultation process, BGÉ proposed to the Commission that it might be appropriate to reallocate the EU grant awarded for the construction of IC1 from the onshore system back to IC1. This has the effect of increasing the asset base of the onshore system and reducing the asset base of IC1 by the net book value of the grant, €105.4m (in 2002 prices) at the start of the 2003/4 Gas Year. The Commission is proposing to reallocate the EU grant back to IC1.

The Commission is proposing to allow an opening asset base at September 2003 of €581.9 million (in September 2002 prices) for the interconnectors. This reflects the asset base submitted by BGÉ but including adjustment for the EU grant as outlined above.

3.2.2.2. Onshore system

The Commission is proposing to allow an opening asset base at September 2003 of €779.9 million (in September 2002 prices) for the onshore system. This reflects the asset base submitted by BGÉ but including the following adjustments:

- re-allocating the EU grant to IC1 (see Section 3.7.1);
- adding €6.1 million in respect of the difference between what was in BGÉ's original submission and what the Commission considers a more appropriate method for allocating buildings occupied by BGÉ between transmission, distribution and supply; and
- deducting €1.2 million, representing 50% of the difference between the estimated costs of the laying the ducting and the value understood to be in

Aurora's[4] asset base for the ducting for fibre optic cable laid next to the pipeline to the West.

3.2.2.3. Inch

The Commission is proposing to allow an opening asset base at September 2003 of €11.51 million (in September 2002 prices) for the Inch entry point.

The regulatory asset base will be uprated in future in line with a suitably defined eurozone inflation rate, not the Irish CPI. The choice of price index for uprating the asset base should reflect BGT's costs in purchasing equipment and pipework. These costs do not change in line with Irish CPI. Whilst it might be suitable to upgrade operating expenditures with the Irish CPI (as a large component of opex is labour costs which tend to follow CPI), the Commission believes that the eurozone inflation index is more appropriate for uprating the RAB. This is also consistent with the way in which BGÉ's cost of capital has been estimated (see below).

3.3. Depreciation

The Commission is proposing to use straight-line depreciation in calculating the allowed revenues of BGT on assets associated with the Inch entry point, the assets associated with the first interconnector with Moffat (i.e., IC1) and the grant associated with it, and on the majority of the onshore system assets. The Commission believes straight-line depreciation of assets is objective and stable and notes that is widely employed by regulators in other jurisdictions for the purposes of calculating allowed revenues. A majority of respondents to the T&D Principles paper favoured straight-line depreciation.

However, both the pipeline to the West and the interconnectors (following the completion of IC2) are currently under-utilised. In these circumstances the Commission has decided to defer depreciation of these two particular assets compared with what a straight line profile would produce. In the case of both the pipeline to the West and IC2 the Commission is proposing to allow depreciation at a straight line rate of 1% a year for the first ten years of those pipeline assets' remaining lives. The rate for the rest of the assets' remaining lives will be at a straight line rate sufficient to ensure 100% depreciation over the whole 50 year lives of the pipeline assets in question.

BGT's current accounting policy is to depreciate its assets using straight-line depreciation. The asset lives used by BGT for its regulated pipeline systems are as follows:

- Pipelines and Above Ground Installations (AGIs) – 40 years;

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[4] BGÉ's telecommunications business.

- Compressor stations – 20 years.

As part of the review of transmission tariffs, the Commission's engineers have assessed the design, technical and economic life of BGT's regulated assets. The conclusion from this review is that the technical lives of both pipelines and compressor stations are greater than that used by BGT to calculate depreciation. The Commission's engineers have concluded that more appropriate technical lives for BGT's regulated assets are as follows:

- Pipelines – 50 years;
- Compressor stations – 25 years.

The Commission's engineers consider that BGT's 40 year asset life for AGIs is appropriate.

The Commission is proposing to extend the asset lives of pipelines to 50 years and of compressor stations to 25 years for the purposes of calculating straight-line depreciation charges used in the allowable revenue calculation.

3.4. Cost of Capital

In the Commission's March 2003 consultation paper on tariff principles, the Commission indicated its preference for using the capital asset pricing model (CAPM) methodology in estimating BGÉ's cost of capital. This is the method most widely used by regulators in determining a rate of return commensurate with the risks faced by the regulated utility. Respondents to the consultation also indicated a general preference for using this method on the basis that it is widely used and understood.

The Commission is proposing to use a Weighted Average Cost of Capital (WACC) of 5.74%. The table below sets out the various components of the WACC.

Table 3.1
CER's estimate of BGÉ's cost of capital

		%	Calculation
1	Risk free rate (nominal)	4.5	
2	Inflation	1.9	
3	Risk free rate (real)	2.5	(1+[1])/(1+[2])-1
4	Debt premium (incl. Issuance costs)	1.4	
5	**Cost of debt (real)**	**3.9**	[3] + [4]
6	Equity Risk Premium	5.0	
7	Tax	12.5	
8	Asset beta	0.4	
9	Equity beta	0.9	[8] * (1+[12])
10	**Cost of equity (real, post tax)**	**7.0**	[3]+[9]*[6]
11	Gearing (D/D+E)	0.55	
12	Leverage (D/E)	1.22	[11]/(1-[11])
13	Real post-tax WACC	5.0	[11]*[5]*(1-[7])+(1-[11])*[10]
14	**Real pre-tax WACC**	**5.74**	[13]/(1-[7])

The Commission has based its estimate of BGÉ's WACC on an asset beta of 0.4. This is in line with estimated betas for British Gas (before Lattice was demerged from British Gas) and Gas Natural (Spain). There are other comparators, such as SNAM in Italy and Distrigas in Belgium, whose estimated asset betas are considerably lower than 0.4. But as neither SNAM nor Distrigas has been listed for a sufficiently long period, the Commission has not taken these lower estimates into account in arriving at an estimate of BGÉ's cost of equity.

3.5. Operating Costs

The table below shows the operating expenditure that BGÉ requested in relation to each of the entry points and for the onshore system.

Table 3.2
BGÉ requested operating expenditure

(2002 Values, €m)	**2003/4**	**2004/5**	**2005/6**	**2006/7**
Interconnectors	11.40	12.79	13.32	13.38
Inch	1.07	1.40	1.48	1.54
Onshore	31.68	32.55	33.36	33.23
(of which central services)	18.34	19.55	20.29	20.47
Total	***44.15***	***46.73***	***48.15***	***48.15***

The Commission is satisfied that the direct operating costs requested by BGÉ are appropriate. However, in calculating allowable revenues, the Commission is proposing to make the following adjustments in respect of the central services allocated to the onshore system:

- The Commission has used its own estimate of what the CER levy will be over the regulatory required period to finance the Commission's activities in regulating the gas sector. This value was lower than the estimate of BGÉ;
- The Commission is proposing a constant real annual amount for insurance premiums from the 2003/4 level, rather than one which rises at 5% a year in real terms; and
- The Commission is proposing that there be no increase in real terms in corporate costs and other transaction costs over the period of the review.

The table below shows the Commission's proposed operating expenditure figures, where these are different from those proposed by BGÉ (i.e. for the onshore system).

Table 3.3
CER proposed operating expenditure

(2002 Values, €m)	**2003/4**	**2004/5**	**2005/6**	**2006/7**
Onshore	30.95	31.31	31.82	31.59

3.6. Capital Expenditure

The table below sets out the capital expenditure requested by BGÉ for its transmission business from 2003/4 onwards. Over and above BGÉ's original submission, an additional capital expenditure in the year 2003/4 has been included in respect of a 650 mm pipe between Cappagh South and Ballymoneen, which will enable the transmission of gas to Galway City. This expenditure is still to be agreed by the Commission, but is included here as a prudent allowance and in recognition that some expenditure will be incurred. Other expenditures originally envisaged for the spur to Galway have been delayed from 2002/3 to 2003/4.

Table 3.4
BGÉ requested capital expenditure

(Values, €m)	**2003/04**	**2004/05**	**2005/06**	**2006/07**
Onshore system				
Growth capex	35.50	4.01	3.81	3.81
Non-growth capex	10.87	9.28	9.18	9.18
Indirect non-growth capex	6.173	2.838	2.705	2.329
Total onshore system	52.54	16.12	15.69	15.31
Inch				
Growth capex	0.40	3.21	0.40	0.00
Non-growth capex	0.00	0.00	0.00	0.00
Indirect non-growth capex	0.55	0.20	0.20	0.20
Total Inch	0.95	3.41	0.60	0.20
IC1				
Growth capex	0.00	0.00	0.00	0.00
Non-growth capex	3.10	2.05	4.14	0.00
Indirect non-growth capex	1.30	0.40	0.40	0.20
Total IC1	4.40	2.45	4.54	0.20
IC2				
Growth capex	0.00	0.00	0.00	34.50
Non-growth capex	0.00	0.00	0.00	0.00
Indirect non-growth capex	0.40	0.40	0.20	0.20
Total IC2	0.40	0.40	0.20	34.70
Total Capex	***58.29***	***22.38***	***21.03***	***50.41***

The Commission is proposing to make a number of adjustments to the figures for capital expenditure submitted by BGÉ:

- growth capital expenditure and non-growth capital expenditure have been reduced by 10% on advice from our engineering consultants, based on scope for continuing efficiency improvements;
- investment associated with Cluden-Brighouse Bay is delayed from 2006/7 to 2007/8 because of the uncertainties over interconnector volumes; and
- capital expenditure for new connections has been reduced by a further 25%, from 2004/5. This reflects the proposed new connections policy, which is the subject of a separate paper (CER/03/145), which will allow 25% of the costs of connection to be recovered directly from the customer.

The table below presents the Commission's proposed figures for BGÉ's transmission business's capital expenditure from 2003/4 onwards. All pipeline-related capital expenditures will be subject to rigorous examination under the Section 39A consents process as applicable.

Table 3.5
CER proposed capital expenditure

(Values, €m)	**2003/04**	**2004/05**	**2005/06**	**2006/07**
Onshore system				
Growth capex	31.95	2.71	2.57	2.57
Non-growth capex	9.78	8.35	8.26	8.26
Indirect non-growth capex	6.173	2.838	2.705	2.329
Total onshore system	47.91	13.89	13.53	13.16
Inch				
Growth capex	0.36	2.89	0.36	0.00
Non-growth capex	-	-	-	-
Indirect non-growth capex	0.55	0.20	0.20	0.20
Total Inch	0.91	3.09	0.56	0.20
IC1				
Growth capex	0	0	0	0
Non-growth capex	2.79	1.85	3.73	0.00
Indirect non-growth capex	1.30	0.40	0.40	0.20
Total IC1	4.09	2.25	4.13	0.20
IC2				
Growth capex	0.00	0.00	0.00	0.00
Non-growth capex	0.00	0.00	0.00	0.00
Indirect non-growth capex	0.40	0.40	0.20	0.20
Total IC2	0.40	0.40	0.20	0.20
Total Capex	53.31	19.63	18.42	13.76

3.7. Treatment of Interconnectors

The Commission received a significant number of responses to the options detailed in the T&D Principles paper for the treatment of the spare capacity costs of IC2. These responses are summarised in CER/03/142.

3.7.1. Reallocation of Grant

During the consultation process, one option for reducing the impact of the spare capacity costs of the interconnectors on the Moffat entry tariff was drawn to the Commission's attention that had not been consulted on in the T&D Principles paper. The option concerned the treatment of the EU grant awarded to BGÉ for the construction of IC1. Although awarded for the construction of IC1, for the purposes of setting transmission tariffs, the grant had been allocated from IC1 to the onshore system. The rationale for allocating the grant to the onshore system was stated at the time as follows:

> "*The EU grant should be removed from the ratebase of Interconnector 1, and applied instead to the onshore network, ensuring that it benefits all gas users in Ireland, without discriminating against potential new pipelines*"[5]

There are two arguments for allocating the grant to the onshore system, rather than the interconnectors: (1) it provides all Irish gas users with benefits; and (2) it stops discrimination against potential new pipelines.

The Commission sees merit in the argument that the grant should be used to the benefit of all gas users in Ireland. However, it is not necessarily the case that only by allocating the grant to the onshore system will all Irish gas users benefit. It is a widely held view within the industry that gas prices in Ireland are set by Interconnector gas. If this is the case, then reallocating the grant to the interconnectors will reduce the cost of entry paid gas prices in Ireland, as the entry charge at Moffat falls.

The second argument for not allocating the grant to the interconnector is that it will discriminate against potential new pipelines. This argument needs to be put in context. At the time the grant was re-allocated to the onshore system, there were several competing projects for a second interconnector. If the second interconnector had been built and operated by someone other than BGÉ, retaining the grant in IC1 would have discriminated against the operator of the new interconnector. As it was BGÉ who constructed IC2, reallocating the grant to IC1 will not discriminate against the owner and operator of IC2. Moreover, given projected usage of IC2 and current demand forecasts it is liable to be some considerable time before a third competing interconnector becomes a commercially attractive opportunity, regardless of where the grant is allocated.

The Commission believes it is appropriate to reallocate the EU grant from the onshore system back to IC1. Other things being equal, the effect of reallocating the grant is to reduce the asset base (and revenue requirement) of the interconnectors and increase the asset base (and revenue requirement) of the onshore system by the net book value of the grant, which was €105.4 m (in 2002 prices) at the start of the 2003/4 Gas Year.

3.7.2. Profiled depreciation

For the purposes of calculating the revenue requirement for Inch, IC1, the EU grant and for the majority of the onshore system, the Commission has adopted straight-

[5] "New Pipeline Authorisation and Third Party Access Tariffs for the Natural Gas Network", Brattle Group, July 2000.

line depreciation. However, the Commission has decided it is appropriate to adopt a different depreciation method and profile in relation to a proportion of the interconnector assets and all of the pipeline to the West. For the purpose of the interconnectors the alternative depreciation methodology has been assessed against the asset value for IC2 although it is acknowledged that both interconnectors will physically flow gas during the review period.

For the purposes of calculating allowable revenues, depreciation of IC2 assets and the pipeline to the West is therefore not on a straight-line basis (except for new capital expenditure on assets with a life of 5 years). The depreciation profile for IC2 assets and the pipeline to the West (other than for those with lives of 5 years) is at a rate of 1% per annum up to 2013/4. After this time, the depreciation charge increases to a constant level required to recover the costs of the assets over the remaining life of the assets. This depreciation profile can be thought of as a proxy for a depreciation profile based on expected usage.

Adopting the above depreciation profiles provides a transparent method for reducing the revenues recoverable in the short-term without stranding any of the costs of the interconnectors, i.e., allowing full cost recovery. The effect of these changes to depreciation is to reduce the annual depreciation, but BGÉ continues to earn a return *on* the capital invested in those assets and a commitment to a return *of* capital.

3.8. Previous under-recoveries

BGÉ under-recovered revenues in 2002/3 (compared with what it was allowed to recover) for several reasons.

First, in its review of tariffs in line with the Ministerial Directives of 2001 the Commission explicitly directed BGÉ to defer €10m of revenues from 2002/3. Second, further revenues have been under-recovered as a result of the closure of IFI and the 'levelisation' method by which 2002/3 tariffs were calculated. The IFI effect occurred because – in setting tariffs for 2002/3 – BGÉ assumed that IFI would continue to be a major user of gas in that year. With its closure, unit tariffs were too low to recover allowed revenues. The effect has been estimated by BGÉ at €10.2 million.

The total extent of under-recovery has been assessed at €27.16m, in 2002/3 prices. The Commission is proposing that BGÉ be allowed to recover all the under-recovery, less 50% arising from the loss of IFI. The latter decision has been taken on the basis that the Commission does not consider it reasonable that customers alone should bear the consequences of the particular event of IFI's closure. In total, therefore, just under €22.1m will be recovered in tariffs over the period of the control period (i.e., up to the end of gas year 2006/7).

The recovery will be made as follows:

- The €10 million deferral is to be recovered over final three years of review period; and

- The remainder is to be recovered over the full four years.

4. FORM OF REVENUE CONTROL

In the T&D Principles paper the Commission discussed the appropriate form of incentive regulation to apply to transmission (and distribution) activities. In general, respondents to the consultation paper supported the use of incentive regulation. The Commission also invited comments on the appropriate form of the incentive mechanism. In general, respondents to the T&D Principles paper supported the Commission's proposal to adopt a CPI-X mechanism. While specific efficiencies have been assessed under individual opex and capex lines, the Commission has decided that X shall be set at 0% in determining the allowable revenues and estimated average tariffs given the need for further clarity on key market developments (e.g. the timing of Corrib), which – other things being equal – might result in upward pressure on transmission tariffs in the medium term.

The Commission is proposing to use a revenue cap for controlling BGT's transmission allowable revenues, which in any event gives significant incentives to BGT to increase efficiencies. The Commission believes a revenue cap is appropriate because the level of spare capacity within the Irish gas transmission system means that BGT's costs are in large part invariant to the level of demand.

As transmission tariffs include both a capacity and commodity element, transmission revenues will not be invariant to demand. The Commission is therefore intending to use an annual adjustment to revenues (the K-factor) to adjust for any under or over-recovery of revenues. Any under or over recoveries will be adjusted by the Euribor rate + 2% for the appropriate period. Any over-recoveries exceeding 3% of the allowed revenues for the year will be recovered in the following year at Euribor + 4%.

Three separate revenue requirements are calculated for BGT's transmission activities, for: (1) the onshore system; (2) the two interconnectors (the Moffat entry point); and (3) the Inch entry point. Each will have its own revenue control formula, to ensure that BGT does not cross-subsidise Inch or Moffat entry or exit tariffs at the expense of another.

The Commission will ensure that BGT uses its best endeavours in setting its charges to ensure that, in respect of any gas year, the revenue it derives from entry and exit tariffs shall not exceed the maximum allowable revenue, which will be set according to a formula that will be finalised over the coming weeks along the following lines:

$$TR_t = TRINCH_t + TRIC_t + TREXIT_t$$

where:

TR_t is the maximum level of revenues BGT will be allowed to recover in respect of its regulated transmission activities in period *t.* It is expressed in millions of euros and in money of the day prices.

$TRINCH_t$ is the maximum level of revenues BGT will be allowed to recover in respect of entry charges at Inch in period *t.* It is expressed in millions of euros and in money of the day prices.

$TRIC_t$ is the maximum level of revenues BGT will be allowed to recover in respect of entry charges at Moffat in period *t.* It is expressed in millions of euros and in money of the day prices.

$TREXIT_t$ is the maximum level of revenues BGT will be allowed to recover in respect of exit charges in period *t.* It is expressed in millions of euros and in money of the day prices.

$TRINCHK_t$ is a correction factor (see below)

$TRINCH_t$, $TRIC_t$ and $TREXIT_t$ shall be derived in the following manner:

$$TRINCH_t = €\ INCH_t * (1+\frac{HICP_t}{100}_t) - TRINCHK_t$$

where $INCH_t$ in respect of each of the four gas years beginning on 1 October 2003 etc. are as follows:

$€\ INCH_{03/04}$ = € 3,008,271

$€\ INCH_{04/05}$ = € 2,725,922

$€\ INCH_{05/06}$ = € 2,782,988

$€\ INCH_{06/07}$ = € 2,658,771

And where $HICP_t$ is the percentage change (whether of a positive or negative value) in the arithmetic average of the harmonised index of consumer prices in the euro area, as published by the European Central bank in its Monthly Bulletin, for the period October to September in the formula year t and the arithmetic average of the harmonised index of consumer prices in the euro area with respect to the months January to December in the year 2002.

The formulae for TRICt and TREXITt will be of the same form. The values for $€IC_{03/04}$ etc. and $€EXIT_{03/04}$ etc. will be as follows:

$€IC_{03/04}$ = € 50,088,778

$€IC_{04/05}$ = € 59,625,774

$€IC_{05/06}$ = € 69,534,339

$€IC_{06/07}$ = € 49,606,721

and

$€EXIT_{03/04}$ = € 89,545,236

$€EXIT_{04/05}$ = € 98,361,794

$€EXIT_{05/06}$ = € 110,895,585

$€EXIT_{06/07}$ = € 113,979,409

In setting tariffs, an estimate will be need to be made of the inflation rate and Irish and UK rates, as well as the various billing determinants (i.e., peak day capacity, commodity throughputs etc.). Because outturn figures for inflation, rates and billing determinants will inevitably differ from forecasts made in setting tariffs, each of the formulae for $TRINCH_t$, $TRIC_t$ *and* $TREXIT_t$ will include a correction factor, as follows:

$$TRINCHK_t = \left[TRINCH_{t-1}^{outturn} - TRINCH_{t-1} + P_{t-1}^{outturn} - P_{t-1} \right] * (1 + \frac{I_t}{100})$$

$TRINCH_{t-1}^{outturn}$ is the value of outturn revenues in respect of entry charges at Inch in year *t-1*.

$TRINCH_{t-1}$ is the maxiumum allowable revenues recoverable from entry charges at Inch in year *t-1*.

I_t is the average Euribor rate in year t. The Commission will apply a factor of 2% to the under-recovery of revenues and for over-recovery up to 103% of allowed revenues. Any over-recovery above 103% of allowed revenues will attract a charge at the Euribor rate +4%.

$P_{t-1}^{outturn}$ is the outturn value of pass-through costs included in the calculation of $TRINCH_t$ when setting tariffs in year *t-1*. Pass-through costs include Irish and UK rates and the CER Levy.

P_{t-1} is the forecast of those pass through costs made in the course of this price determination, and included in the allowable revenues set out in Tables 6.1. 6.2 and 6.3, uprated in line with the increase in the HICP into money of the day prices applicable to *t-1.*

5. TRANSMISSION TARIFFS

Chapter 4 described the Commission's approach to setting the level of allowable revenues for BGÉ's regulated transmission activities. This chapter describes the Commission proposals for the structure of transmission tariffs through which BGÉ will be allowed to recover its allowable revenue.

The Commission received several responses to the T&D Principles paper on the subject of the structure of transmission tariffs and provided an opportunity for industry participants to present and voice their views on the structure of transmission tariffs publicly at a workshop held on 15 May 2003.

5.1. Structure of Transmission Tariffs

The Commission believes it is appropriate to retain the existing transmission tariff structure - locational entry charges and a 'postalised' exit charge - for the current four year review. The level of the entry tariffs is determined by the cost of the infrastructure required to input gas into the Irish onshore system at each entry point. The postalised exit tariff will be determined by the average costs of the onshore transmission system, i.e. all exit points pay the same (postalised) tariff. The tariffs will continue to be made up of a capacity charge and a commodity charge that reflect a 90:10 capacity/commodity split.

5.1.1. Entry Charges

A majority of respondents to the T&D Principles paper supported the introduction of a postalised entry tariff. Proponents of a postalised entry tariff argued that it would reduce gas prices to end-consumers in Ireland and would help to address the problems associated with the spare capacity costs of IC2.

The argument that postalising entry charges would reduce gas prices in Ireland depends on the assumption that gas prices in Ireland are set by the price of gas entering the system from Moffat. Postalising entry charges would reduce the entry tariff [albeit by a small amount]. So the price of Moffat gas would fall, as would, so the argument goes, gas prices in Ireland.

The Commission accepts that the price of gas in Ireland is set by the price of gas from Moffat. Postalisation of entry charges would therefore result in Irish gas prices falling in the short run. However, the price reduction is likely to discourage indigenous exploration and production and therefore reduce the potential for competitive pressures on gas prices in the longer run. The Commission believes this would be to the ultimate detriment of Irish gas consumers.

However, the Commission recognises the difficulties caused by the spare capacity costs of IC2. In these proposals the Commission is proposing measures to mitigate the effect on the Moffat locational entry charge of the spare capacity costs of IC2, namely by deferring depreciation of IC2.

The Commission believes that, overall, retaining locational entry charges is of greater benefit, and meets more of the Commission's objectives and duties, than a postalised entry charge would.

5.1.2. Exit Charges

The Commission has decided to retain a postalised exit charge.

The Irish gas transmission system is relatively small and locational cost differences onshore (and hence locational signals) are likely to be small. Moreover, the Consents regime operated by the Commission means that one of the principal difficulties of a postalised exit regime, i.e., inefficient by-pass, is largely avoided. Finally, deep connection charges – as applied to transmission connection charges - can provide appropriate locational signals to potential connectees to the transmission system.

5.1.3. Definition and allocation of costs

The Commission has decided to base transmission tariffs on average costs. However, the Commission sees merit in using marginal costs as the basis for transmission tariffs. Prior to the next review of transmission revenues in 2006/7, the Commission will conduct, in conjunction with BGÉ, a review to assess whether it is desirable to adopt marginal cost based transmission pricing. The review will consider whether a robust methodology can be developed, what it will cost to implement and the significance of these costs in relation to the likely benefits.

The Commission is proposing to retain the 90:10 capacity/commodity split on the grounds that it is a close approximation to the ratio of fixed to variable cost of BGÉ's transmission business.

5.2. Pricing of Short Term and Interruptible Services

The T&D Principles paper discussed the pricing principles for:

1. short-term firm services; and
2. interruptible services.

The Commission is currently considering whether to direct the transporter to develop a short-term firm service. The Commission will announce its proposals in due course in a consultation paper on proposals on market arrangement principles.

Regarding interruptible services, the Commission believes it is appropriate to develop these services once there is a significant probability of interruption at times of peak usage. At present, the Commission considers that the level of capacity in the gas system is sufficient so that it is not necessary to develop an interruptible service at this time.

6. COMMISSION'S PROPOSAL ON TRANSMISSION REVENUES

This section sets out what the Commission's various proposals on operating costs, capital expenditures, the regulatory asset base and depreciation mean for the revenues that BGÉ will be allowed to recover in entry and exit charges and for use of the transmission system over the period to 2006/7.

All figures are in 2002 prices. These will be inflated into money of the day terms using the Harmonised Index of Consumer Prices for the euro area, as published each month by the European Central Bank in its Monthly Bulletin.[6] Annual and peak demand figures are based on analysis carried out for the purposes of the first Gas Capacity Statement.

6.1. Onshore

Table 6.1 below shows what the Commission's proposals mean in terms of the revenues over the period of control which BGÉ will be allowed to recover from exit tariffs.

As the table shows, the level of allowed revenues that BGÉ will be permitted to recover from exit tariffs in 2003/4 amounts to about €90 million (in 2002 prices). This represents an increase of circa 29% in real terms over unit tariffs in 2002/3. Part of the increase stems from the closure of IFI; part from the reallocation of the EU grant from the onshore system to IC1. The deferral of depreciation of the pipeline to the West offsets these factors, but is insufficient to result in a reduction in unit tariffs compared with 2002/3.

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6 See http://www.ecb.int/pub/pdf/mb200306en.pdf for the June 2003 Monthly Bulletin.

Table 6.1
Commission's Allowable Revenue Proposals: Onshore System/Postalised Exit

TRANSMISSION ONSHORE

WACC	5.74%
X	0%

(value €m, 2002 prices)			**2002/3**	**2003/4**	**2004/5**	**2005/6**	**2006/7**	
Previous under-recovery	€m			12.08	3.33	3.33	3.33	
Operating expense	€m			30.95	31.31	31.82	31.59	
Growth capex	€m		66.81	31.95	2.71	2.57	2.57	
Non-growth capex	€m		23.75	15.96	11.19	10.96	10.59	
Total costs	€m		90.56	78.86	45.21	45.36	44.75	
NPV COSTS	€m	*214.78*						
Total opening asset value	€m		718.78	779.91	806.28	799.24	791.83	
Total depreciation	€m		29.44	21.53	20.93	20.94	21.23	
Investment	€m		90.56	47.91	13.89	13.53	13.16	
Total closing asset value	€m		779.91	806.28	799.24	791.83	783.76	
				779.91	0.00	0.00	0.00	-783.76
NPV 'RETURN'	€m	*152.97*						
TOTAL NPV (return+cost)	€m	*367.75*						
CALCULATION OF ANNUAL REVENUES								
Operating expense	€m			30.95	31.31	31.82	31.59	
Depreciation	€m			21.53	20.93	20.94	21.23	
Revenue (*)	€m			89.55	98.36	110.90	113.98	
Revenue *minus* (opex + dep'n)	€m			37.06	46.12	58.13	61.16	
NPV Revenue Check	*€m*	*367.75*						
Return on Capital employed				4.7%	5.7%	7.3%	7.8%	
DEMAND								
Demand Index				68,792	75,566	85,195	87,564	
Average tariff				1302	1302	1302	1302	
Annual change in ave. tariff					0.00%	0.00%	0.00%	

(*) Opening revenues are set such that the NPV of revenues = NPV of (return + costs) and average unit tariffs reduce by x% per year

6.2. Interconnectors

Table 6.2 below shows what the Commission's proposals mean in terms of revenues over the period of control which BGÉ will be allowed to recover from the Moffat entry tariff.

As the table shows, the level of allowed revenues that BGÉ will be permitted to recover from the Moffat entry tariff in 2003/4 amounts to €50 million (in 2002 prices). This represents a reduction of circa 13% in real terms over unit Moffat entry tariffs in 2002/3. Part of the reduction stems from the deferral of depreciation of IC2; and part from the reallocation of the EU grant from the onshore system to IC1.

Table 6.2
Commission's Allowable Revenue Proposals: Interconnectors/Moffat Entry

TRANSMISSION IC1 & IC2

WACC	5.74%
X	0%

(value €m, 2002 prices)

			2001/2	2002/3	2003/4	2004/5	2005/6	2006/7	
Operating expense	€m				11.40	12.79	13.32	13.38	
Growth capex	€m			43.40	0.00	0.00	0.00	0.00	
Non-growth capex	€m			1.94	4.49	2.65	4.33	0.40	
Total costs	€m			45.34	15.89	15.43	17.64	13.78	
NPV COSTS	€m	*55.38*							
Opening asset value	€m			556.66	581.85	573.38	562.83	553.70	
Depreciation	€m			20.15	12.96	13.19	13.46	13.54	
Investment	€m			45.34	4.49	2.65	4.33	0.40	
Closing asset value	€m		556.66	581.85	573.38	562.83	553.70	540.56	
					581.85	0.00	0.00	0.00	-540.56
NPV 'RETURN'	€m	*149.45*							
TOTAL NPV (return+cost)	€m	*204.83*							
CALCULATION OF ANNUAL REVENUES									
Operating expense	€m				11.40	12.79	13.32	13.38	
Depreciation	€m				12.96	13.19	13.46	13.54	
Revenue (*)	€m				50.09	59.63	69.53	49.61	
Revenue *minus* (opex + dep'n	€m				25.73	33.65	42.76	22.69	
NPV Revenue Check	*€m*	*204.83*							
Return on Capital employed					4.5%	5.9%	7.7%	4.1%	
DEMAND									
Demand index				48,713	46,542	55,403	64,610	46,094	
Average tariff					1076	1076	1076	1076	
Annual change in ave. tariff						0.00%	0.00%	0.00%	

(*) Opening revenues are set such that the NPV of revenues = NPV of (return + costs) and average unit tariffs reduce by x% per year

6.3. Inch

Table 6.3 below shows what the Commission's proposals mean in terms of allowable revenues over the period of control for the Inch entry tariff.

As the table shows, the level of allowed revenues that BGÉ will be permitted to recover from the Moffat entry tariff in 2003/4 amounts to €3 million (in 2002 prices). This represents an increase of circa 44% in real terms over unit Inch entry tariffs in 2002/3. The increase is largely owing to the need to recover additional capital expenditures on the compressors at Midleton.

Table 6.3
Commission's Allowable Revenue Proposals: Inch Entry

TRANSMISSION INCH

WACC	5.74%
X	0%

(value €m, 2002 prices)

			2002/3	**2003/4**	**2004/5**	**2005/6**	**2006/7**	
Operating expense	€m			1.07	1.40	1.48	1.54	
Growth capex	€m		9.60	0.36	2.89	0.36	0.00	
Non-growth capex	€m		0.00	0.55	0.20	0.20	0.20	
Total costs	€m		9.60	1.98	4.48	2.04	1.74	
NPV COSTS	€m	*9.24*						
Opening asset value	€m		2.56	11.51	11.81	14.19	13.98	
Depreciation	€m		0.65	0.61	0.71	0.77	0.81	
Investment	€m		9.60	0.91	3.09	0.56	0.20	
Closing asset value	€m		11.51	11.81	14.19	13.98	13.38	
				11.51	0.00	0.00	0.00	-13.38
NPV 'RETURN'	€m	*0.81*						
TOTAL NPV (return+cost)	€m	*10.04*						
CALCULATION OF ANNUAL REVENUES								
Operating expense	€m			1.07	1.40	1.48	1.54	
Depreciation	€m			0.61	0.71	0.77	0.81	
Revenue (*)	€m			3.01	2.73	2.78	2.66	
Revenue *minus* (opex + dep'n	€m			1.33	0.62	0.54	0.32	
NPV Revenue Check	*€m*	*10.04*						
Return on Capital employed				11.4%	4.8%	3.8%	2.3%	
DEMAND								
Demand index (10% comm + 90% cap)			18,213	22,251	20,162	20,584	19,666	
Average unit tariff				135	135	135	135	
Annual change in ave. tariff					0.00%	0.00%	0.00%	

(*) Opening revenues are set such that the NPV of revenues = NPV of (return + costs) and average unit tariffs reduce by x% per year

6.4. Overall Revenues

In summary, the revenues over the period of the review will be as follows:

Table 6.4

(2002 Values, €m)	2003/4	2004/5	2005/6	2006/7
Onshore Exit	89.53	98.34	110.87	113.96
Interconnectors/Moffat Entry	50.02	59.54	69.44	49.54
Inch Entry	3.01	2.73	2.79	2.66
Total	***142.56***	***160.61***	***183.1***	***166.16***

7. THE WAY FORWARD

Following the publication of this paper, the Commission invites BGÉ to calculate and publish indicative tariffs in line with the various components outlined in this paper.