Commission for Energy Regulation
An Coimisiún um Rialáil Fuinnimh

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

1 October 2003 – 30 September 2007

23 July 2003

CER/03/172

TABLE OF CONTENTS

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 determination of revenues for Bord Gáis Transmission ("BGT") and of tariff structures for the four-year period from 1 October 2003 to 30 September 2007. The Commission will publish its determination of Bord Gáis Éireann's ("BGÉ") distribution revenues and tariff structure 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 form of the revenue control to apply to gas transmission;
- Section 5 sets out the structure for gas transmission tariffs; and
- Section 6 summarises the revenues the Commission is allowing BGÉ for its transmission activities.

2. BACKGROUND AND DIRECTION

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 were 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.

A proposed decision was published by the Commission on 17 June 2003 (CER/03/144). A summary of comments received in relation to that paper can be found in CER/03/144a.

The Commission now hereby directs BGÉ to calculate transmission tariffs in line with this decision document for the period from 1 October 2003 to 30 September 2007.

---

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"

3. DETERMINATION OF ALLOWABLE REVENUES AND REVENUE CONTROL PERIOD

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 control period for transmission will be four years. 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 Commission has decided to value BGT's opening assets on the basis of Indexed Historical Cost (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

The EU grant awarded for the construction of IC1 will be reallocated back to IC1 (it had previously been allocated to the Onshore system). 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 will 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 will allow an opening asset base at September 2003 of €779.2million (in September 2002 prices) for the onshore system. [4] 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 €0.3 million, representing 50% of the difference between the estimated costs of the laying the ducting and the value understood to be in Aurora's[5] asset base for the ducting for fibre optic cable laid next to the pipeline to the West.[6]

3.2.2.3. Inch

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

The choice of price index for uprating the asset base should reflect BGT's costs in purchasing equipment and pipework. The same index will be used for both operating and capital expenditure costs. The Commission has decided to use the Irish Harmonised Index of Consumer Prices (HICP), the index that most reasonably tracks BGT's real cost increases. The Commission believes that for consistency it is best to use a single index for both inflation and for calculating the WACC, and that the Irish HICP is, on balance, the most appropriate index to use.

3.3. Depreciation

Straight-line depreciation will be used 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.

---

4 The figure presented in the CER's proposal document was €779.9 million. The difference reflects an amendment to the treatment of the telecoms deduction and other smaller adjustments to depreciation.

5 BGÉ's telecommunications business.

6 The figure presented in the CER's proposal document was €1.2 million. The majority of the difference arises as BGÉ had made a deduction from 2002/3 capex figures for ducting that the CER had not included in its previous calculation.

In recognition of the under-utilisation of both the pipeline to the west and the interconnectors (following the completion of IC2) 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 will allow depreciation at a straight line rate of 1% a year for the current regulatory control period.

The asset lives of pipelines and compressor stations will be extended to 50 years and 25 years respectively for the purposes of calculating straight-line depreciation. The Commission considers that BGT's 40-year asset life for AGIs is appropriate.

3.4. Cost of Capital

A Weighted Average Cost of Capital (WACC) of 5.74% will be used. 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. However, the Commission notes that neither SNAM nor Distrigas has been listed for a long period. In making its decision for a beta of 0.4, the Commission notes also that in 2000 Ofgem used a range of 0.3-0.4 for NGC and of 0.4 for Transco in 2001. Moreover, in 2001 for electricity transmission the Commission used an asset beta of 0.41. It is on the basis of these figures that Commission has adopted an asset beta of 0.4 for BGÉ.

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 following adjustments will be made 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. Consistent with its decision in distribution, the Commission is also proposing to disallow 50% of public relation costs sought by BGÉ for its transmission business, with the reduction phased evenly over 2 years. This reduces BGT's public relation costs from €405k to €203k by 2004/5.

The table below shows the allowed 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	30.85	31.11	31.62	31.39

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***

A number of adjustments will be made 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 new connections policy, which is the subject of a separate paper (CER/03/173), which will allow a varying proportion of the costs of connection to be recovered directly from the customer depending on whether or not they have choice of location.

The table below presents the 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 will deal with the interconnectors in the following manner.

3.7.1. Reallocation of Grant

The EU grant will be reallocated 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 2002/3 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-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 equal to the asset value for IC2 and for the entire pipeline to the west. 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 such as IT equipment), but at a rate of 1% per annum for the current review period (i.e, until 30 September 2007). This level of depreciation can be thought of as a proxy for a depreciation profile based on expected usage. Following comments received in response to its proposed decision the Commission has decided that the annual rate of depreciation will be reviewed as part of the regulatory tariff review prior to the next regulatory period.

3.8. Previous under-recoveries

BGÉ under-recovered revenues in 2002/3 to the extent of €27.16m, in 2002/3 prices. The Commission will allow BGÉ to recover all the under-recovery, less 50% arising from the loss of IFI. Bearing in mind that the closure of IFI is certainly an exceptional event, the latter stand-alone 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).

In a change to the proposed decision, the Commission has decided that the recovery will be made in the same manner as set out in the regulatory control formula. That is, inflated at Euribor plus 2% over 12 months. The under-recovery of €22.1 million is uprated by 4.044% (12 month Euribor up to 14 July 2003 [2.044%] plus +2%) to €22.97 million.

4. TRANSMISSION REVENUE CONTROL FORMULAE

A CPI-X mechanism will be used.[7] However, while specific efficiencies have been assessed under individual opex and capex lines, the Commission has decided that X shall be set at -2% (i.e., CPI–(–2%) being the equivalent to CPI+2%) in determining the allowable revenues and estimated average tariffs, i.e. if forecast demand is realised, tariffs will *rise* at 2% per annum in real terms. This change to the proposed decision addresses two issues. First, there may be upward pressure on transmission tariffs in the medium term (due to, for example, the development of the Corrib gas field). Setting X to allow for a real per annum increase of 2% will therefore avoid artificially decreasing tariffs. Second, setting X at –2% will alleviate the burden of the initial increase in tariffs.

A revenue cap will be used for controlling BGÉ's transmission allowable revenues. A revenue cap allows BGT to earn a given amount of revenue in each year of the regulatory period. The level of revenue is set according to the formula presented below in which revenues are based on the CER's assessment of opex and capex (described above). Under a revenue cap, BGÉ has an incentive to seek out efficiencies, as it will be allowed to retain differences between its outturn costs and the level of costs used to calculate the revenue cap. 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. Therefore, a correction factor will be applied 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%. The correction factors also allow for allowable revenues raised from entry and exit tariffs to be reduced if other sources of revenue become available to BGT from (currently unforeseen or currently unquantifiable) uses of its assets, for example, revenue raised from the use of the interconnectors as a backup to indigenous supplies. BGT will retain 50% of any such unforeseen revenues, and 50% will be deducted from allowable revenues.

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 has 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.

---

7 Please note, however, that the Irish Harmonised Index of Consumer Prices will be used in place of CPI.

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. For the period of the revenue control, CER will use the formulae detailed below to calculate the maximum allowed revenues of BGÉ's transmission business unit in a given year of the revenue control period.

4.1. Revenue Formula

The maximum allowable revenues for BGT is given by the following:

$$TR_{t+1} = TRIC_{t+1} + TRINCH_{t+1} + TREXIT_{t+1},$$

where,

TR_{t+1} is the maximum level of revenues BGT will be allowed to recover in respect of its entry and exit tariffs in period *t+1*. It is expressed in millions of euros and in money of the day prices.

$TRIC_{t+1}$ is the maximum level of revenues BGT will be allowed to recover in respect of entry charges at Moffat in period *t+1*. It is expressed in millions of euros and in money of the day prices.

$TRINCH_{t+1}$ is the maximum level of revenues BGT will be allowed to recover in respect of entry charges at Inch in period *t+1*. It is expressed in millions of euros and in money of the day prices.

$TREXIT_{t+1}$ is the maximum level of revenues BGT will be allowed to recover in respect of exit charges in period *t+1*. It is expressed in millions of euros and in money of the day prices.

The maximum level of revenues for the Interconnectors will be derived in the following manner:

$$TRIC_{t+1} = \left\{ \left[\prod_{j=2003/4}^{t+1} \left(1 + \frac{HICPD_j}{100} \right) \right] * \left[BIC_{t+1} \right] \right\} + PICF_{t+1} + KIC_t + KIC_{t-1} - (0.5 * UICF_{t+1}),$$

where,

$HICPD_j$ is the percentage change in the Irish (all-items) Harmonised Index of Consumer Prices (HICP) for the 12-month period April to March in the year j. Where j>t, $HICPD_j$ is a forecast value (i.e. $HICPF_j$). Where j<=t

$HICPD_j$ is the value for Irish (all items) HICP published by Eurostat in *Eurostatistics for short-term economic analysis: monthly.*[8]

BIC_{t+1} is the level of allowable revenues derived from the use of the interconnector assets expressed in real 2002/3 gas year terms for the transmission business in year t+1. It is expressed in Euro m as shown in Table 4.1 below.

$UICF_{t+1}$ is the forecast of revenue raised in year t+1 from use of Interconnector assets other than derived from the Moffat entry charge, expressed in nominal (i.e. year t+1) Euro millions terms. The forecast for year t+1 is made in year t.

$PICF_{t+1}$ is the forecast level of pass-through costs associated with the Interconnectors less the level of pass through costs on which approved base (BIC_{t+1}) revenues were originally determined. It is expressed in nominal (i.e. period t+1) Euro millions.[9]

KIC_t is the correction factor which adjusts Interconnector revenues in year t+1 to reflect the difference between forecast values and expected outturn values in year t, with interest payments (and penalties for over or under-recovery) added on. In 2003/4 previous under recoveries are included in base revenue (BIC_{t+1}), hence in the revenue calculation for 2003/4 K_t is assumed to equal 0, otherwise, K_t is determined by the equation below.

KIC_{t-1} is the correction factor which adjusts Interconnector revenues in year t+1 to reflect the difference between expected outturn values and actual outturn values in year t-1, with interest payments (and penalties for over or under-recovery) added on. In 2003/4 previous under recoveries are included in base revenue (BIC_{t+1}), hence in calculation of revenues for 2003/4 and 2004/5 K_{t-1} is assumed to equal 0, otherwise, K_{t-1} is determined by the equation below.

4.2. Correction Factor Formulae

The revenue formula for the Moffat entry tariff contains two correction factors (KIC_t and KIC_{t-1}). KIC_t adjusts revenues for differences between forecast values and expected outturn values on the Interconnectors. KIC_{t-1} adjusts revenues for differences between expected outturn values and actual outturn values on the Interconnectors. The corrections relate to changes in the forecast, expected and outturn levels of revenues, uncontrollable costs and inflation. The Commission will allow deviations between forecast and expected and between expected and actual

8 March (year t) inflation data are usually available in the June (year t) Eurostat publication. This is the data that the CER will use in the revenue calculation. If this data is not available, the CER will use its judgement to identify another appropriate measure of Irish HICP. Similarly, the Commission will use its judgement to determine an appropriate forecast value of HICP.

9 NB: in the first year of the revenue control period (2003/4) $PICF_{t+1}$=0.

revenues of 3%. Any over-recovery of revenues beyond 103% will attract an interest rate of Euribor plus 4%. Over-recoveries of up to 3% and under-recoveries will earn Euribor plus 2%. This is included in the formulae to incentivise BGT to make accurate forecasts of demand.

KIC_t adjusts revenues for differences between forecast values and expected outturn values. The distinction made here between the two values is that forecasts are made ahead of the start of the period in question, whereas expected outturn values are estimates of outturn values made with knowledge of outturn values for part of the period in question (i.e. they are more accurate forecasts).

$$KIC_t = \left[(RIC_t + (0.5 * UICF_t)) * \left(\frac{1 + HICPR_t}{1 + HICPF_t} \right) + PICR_t - (FICR_t + (0.5 * UICR_t)) \right] * \left(1 + \frac{I_t}{100} \right),$$

where,

RIC_t is the maximum level of revenues allowed in period t and on which this year's Moffat tariffs were based. It is expressed in nominal (i.e. in year t) Euro million terms.

$UICF_t$ is the forecast of revenue to be raised in year t from use of Interconnector assets other than derived from the Moffat entry charge, made at the end of year t-1 when determining allowable revenues for year t. It is expressed in nominal (i.e. year t) terms.

$HICPR_t$ is the percentage change in the Irish (all items) HICP for the 12-month period April (t-1) to March (t) in the formula year t and as published by Eurostat in *Eurostatistics for short-term economic analysis: monthly.*

$HICPF_t$ is the forecast percentage change of Irish (all items) HICP for the 12-month period April (t-1) to March (t) used when originally setting this year's (t) allowed revenue (i.e. the forecast made before the end of the year t-1).

$PICR_t$ is the forecast level of pass-through costs associated with the Interconnectors used in calculating revenues for year t less the expected outturn of pass through costs for year t. It is expressed in nominal (i.e. period t) Euro million terms.

$FICR_t$ is the forecast made before the end of year t of revenue to be recovered from the Moffat entry tariff in year t.

$UICR_t$ is the revised forecast of revenue to be raised in year t from the use of Interconnector assets other than derived from the Moffat entry charge, made before the end of the year t. It is expressed in nominal (i.e. year t) terms.

I_t is the average nominal Euribor rate in year t in percentage terms. The Commission will apply a factor of 2% if recovered revenues are below 103%

of allowed revenues. Any over-recovery above 103% will attract a charge of the Euribor rate +4%.

The second correction factor, $KIC_{t-1,}$ adjusts Interconnector revenues for differences between expected outturn values and actual outturn values and is defined as follows:

$$KIC_{t-1} = \left[(RIC_{t-1} + (0.5*UICF_{t-1}))*\left(\frac{1+HICPA_{t-1}}{1+HICPR_{t-1}}\right) + PICA_{t-1} - (AICR_{t-1} + (0.5*UICA_{t-1})) \right]*\left(1+\frac{I_t}{100}\right)*\left(1+\frac{I_{t-1}}{100}\right)$$

where,

RIC_{t-1} is the maximum level of revenues allowed in period t-1 and on which last year's Moffat tariffs were based. It is expressed in nominal (i.e. in year t-1) Euro million terms.

$UICF_{t-1}$ is the forecast of revenue to be raised in year t-1 from use of Interconnector assets other than derived from the Moffat entry charge, made at the end of year t-2 when determining allowable revenues for year t-1. It is expressed in nominal (i.e. year t-1) terms.

$HICPR_{t-1}$ is the percentage change in the Irish (all items) HICP for the 12-month period April (t-2) to March (t-1) in the formula year t-1 and as published by Eurostat in *Eurostatistics for short-term economic analysis: monthly* in the year t-1.

$HICPA_{t-1}$ is the percentage change in the Irish (all items) HICP for the 12-month period April (t-2) to March (t-1) in the formula year t-1 and as published by Eurostat in *Eurostatistics for short-term economic analysis: monthly* in the year t.

$PICA_{t-1}$ is the expected outturn of pass through costs associated with the Interconnectors for year t-1 used in amending the revenues that ought to have been allowed for year t-1 less the actual outturn of pass through costs on year t-1. It is expressed in nominal (i.e. year t-1) Euro million terms.

$AICR_{t-1}$ is the actual revenue recovered from the Moffat entry tariff in year t-1.

$UICA_{t-1}$ is the actual revenue raised in year t-1 from the use of Interconnector assets other than derived from the Moffat entry charge. It is expressed in nominal (i.e. year t-1) terms.

I_t is the nominal average Euribor rate in year t +2%.

I_{t-1} is the nominal average Euribor rate in year t-1 +2%. The Commission will apply a factor of 2% if recovered revenues are below 103% of allowed revenues. Any over-recovery above 103% will attract a charge of the Euribor rate +4%.

The revenue formulae for $TRINCH_{t+1}$ and $TREXIT_{t+1}$, and the corresponding correction factors, take on the same structure as for $TRIC_{t+1}$ described in the above equations, except parameters referring to Moffat tariffs and Interconnectors are replaced by parameters referring to Inch tariffs and Inch in the case of $TRINCH_{t+1}$ and by parameters referring to Exit tariffs and the onshore system in the case of $TREXIT_{t+1}$. The following are the parameters that change across the calculations of revenues for the Interconnectors, Inch and the Onshore system.

Parameters used in calculation of: $TRIC_{t+1}$	**Replacement parameters to be used in calculation of:**	
	$TRINCH_{t+1}$	**$TREXIT_{t+1}$**
TRICt+1	*TRINCHt+1*	*TREXITt+1*
BIC_{t+1}	$BINCH_{t+1}$	$BEXIT_{t+1}$
PICFt+1	*PINCHFt+1*	*PEXITt+1*
KICt	*KINCHt*	*KEXITt*
KICt-1	*KINCHt-1*	*KEXITt-1*
$UICF_{t+1}$	$UINCHF_{t+1}$	$UEXITF_{t+1}$
RICt	*RINCHt*	*REXITt*
$UICF_t$	$UINCHF_t$	$UEXITF_t$
PICRt	*PINCHRt*	*PEXITRt*
$FICR_t$	$FINCHR_t$	$FEXITR_t$
$UICR_t$	$UINCHR_t$	$UEXITR_t$
RICt-1	*RINCHt-1*	*REXITt-1*
$UICF_{t-1}$	$UINCHF_{t-1}$	$UEXITF_{t-1}$
PICAt-1	*PINCHAt-1*	*PEXITAt-1*
$AICR_{t-1}$	$AINCHR_{t-1}$	$AEXITR_{t-1}$
$UICA_{t-1}$	$UINCHA_{t-1}$	$UEXITA_{t-1}$

The parameters not detailed in the above table take the same definition across all equations. The pre-determined parameters for the above equations are as presented below:

Table 4.1
Parameter Values for Revenue Control Formula

Year	**BIC_{t+1} (Euro m Year 2002/3)**	**$BINCH_{t+1}$ (Euro m Year 2002/3)**	**$BEXIT_{t+1}$ (Euro m Year 2002/3)**
2003/4	48.45	2.67	86.66
2004/5	55.69	2.85	96.86
2005/6	68.12	2.86	111.09
2006/7	57.14	2.83	116.53

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 structure of transmission tariffs through which BGÉ will be allowed to recover its allowable revenue.

5.1. Structure of Transmission Tariffs

The existing transmission tariff structure - locational entry charges and a 'postalised' exit charge – will be retained 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.

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.

5.2. Pricing of Short Term and Interruptible Services

The Commission will not direct the Transporter to develop a short-term firm service at present. This issue is dealt with in the Commission's paper "Proposals on Market Arrangement Principles" (CER/03/147).

The Commission considers that the level of capacity in the gas system is sufficient that it is not necessary to develop an interruptible service at this time. Once again, this issue is dealt with in the Commission's paper "Proposals on Market Arrangement Principles" (CER/03/147).

6. COMMISSION'S PROPOSAL ON TRANSMISSION REVENUES

This section sets out what the decisions 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 2002/3 prices. These will be inflated into money of the day terms using the Irish Harmonised Index of Consumer Prices, as published by Eurostat. For the purposes of setting allowable revenues in 2003/4 the Commission will use an inflation rate of 4%.[10] 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 decisions 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 €87 million (in 2002/3 prices). The tariffs resulting from the allowed revenues result in an increase of circa 30% in real terms over unit tariffs in 2002/3. Part of the increase stems from the closure of IFI, and revised demand forecasts; 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.

---

10 If outturn inflation deviates from the forecast value (of 4%) subsequent years' revenues will be adjusted to account for this deviation.

Table 6.1
Commission's Allowable Revenue Proposals: Onshore System (Postalised Exit)[11]

TRANSMISSION ONSHORE

WACC	5.74%
X	-2%

(value €m, 2002/3 prices)

			2003/4	2004/5	2005/6	2006/7	
Previous under-recovery	€m		22.97				
Operating expense	€m		30.85	31.13	31.62	31.39	
Growth capex	€m		31.95	2.71	2.57	2.57	
Non-growth capex	€m		15.96	11.19	10.96	10.59	
Total costs	€m		78.76	45.02	45.16	44.55	
NPV COSTS	€m	*216.13*					
Total opening asset value	€m		779.22	806.56	800.51	794.08	
Total depreciation	€m		20.56	19.95	19.97	20.25	
Investment	€m		47.91	13.89	13.53	13.16	
Total closing asset value	€m		806.56	800.51	794.08	786.99	
			779.22	0.00	0.00	0.00	-786.99
NPV 'RETURN'	€m	*149.70*					
TOTAL NPV (return+cost)	€m	*365.82*					
CALCULATION OF ANNUAL REVENUES							
Operating expense	€m		30.85	31.13	31.62	31.39	
Depreciation	€m		20.56	19.95	19.97	20.25	
Revenue from capacity charge	€m	-	77.24	86.97	100.57	105.36	
Revenue from commodity charge	€m	-	9.41	9.89	10.52	11.17	
Total Revenue (*)	€m		86.66	96.86	111.09	116.53	
DEMAND							
Demand peak days	GWh/day		195	215	243	250	
Demand commodity	GWh		45706	47081	49091	51101	

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

11 Please note that X is set at -2%, giving the equivalent of CPI+2% (i.e., CPI–(–2%) being the equivalent to CPI+2%).

6.2. Interconnectors

Table 6.2 below shows what the Commission's decisions 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 about €48 million (in 2002/3 prices). The tariffs resulting from the allowed revenues result in a reduction of circa 9% 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	-2%

(value €m, 2002/3 prices)

			2003/4	2004/5	2005/6	2006/7	
Operating expense	€m		11.40	12.79	13.32	13.38	
Growth capex	€m		0.00	0.00	0.00	0.00	
Non-growth capex	€m		4.49	2.65	4.33	0.40	
Total costs	€m		15.89	15.43	17.64	13.78	
NPV COSTS	€m	*55.38*					
Opening asset value	€m		581.85	573.46	562.99	553.93	
Depreciation	€m		12.88	13.11	13.38	13.46	
Investment	€m		4.49	2.65	4.33	0.40	
Closing asset value	€m		573.46	562.99	553.93	540.87	
			581.85	0.00	0.00	0.00	-540.87
NPV 'RETURN'	€m	*149.20*					
TOTAL NPV (return+cost)	€m	*204.59*					
CALCULATION OF ANNUAL REVENUES							
Operating expense	€m		11.40	12.79	13.32	13.38	
Depreciation	€m		12.88	13.11	13.38	13.46	
Revenue from capacity charg	€m	-	42.77	50.03	61.81	51.98	
Revenue from commodity cha	€m	-	5.68	5.66	6.31	5.16	
Total Revenue (*)	€m		48.45	55.69	68.12	57.14	
DEMAND							
Demand peak days	GWh/day		131	150	182	150	
Demand commodity	GWh		36832	36016	39347	31581	

(*) 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 decisions 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 about €3 million (in 2002/3 prices). The tariffs resulting from the allowed revenues result in an increase of circa 51% 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	-2%

(value €m, 2002/3 prices)

			2003/4	2004/5	2005/6	2006/7	
Operating expense	€m		1.07	1.40	1.48	1.54	
Growth capex	€m		0.36	2.89	0.36	0.00	
Non-growth capex	€m		0.55	0.20	0.20	0.20	
Total costs	€m		1.98	4.48	2.04	1.74	
NPV COSTS	€m	*9.24*					
Opening asset value	€m		11.51	11.81	14.20	13.99	
Depreciation	€m		0.60	0.71	0.76	0.80	
Investment	€m		0.91	3.09	0.56	0.20	
Closing asset value	€m		11.81	14.20	13.99	13.39	
			11.51	0.00	0.00	0.00	-13.39
NPV 'RETURN'	€m	*0.80*					
TOTAL NPV (return+cost)	€m	*10.03*					
CALCULATION OF ANNUAL REVENUES							
Operating expense	€m		1.07	1.40	1.48	1.54	
Depreciation	€m		0.60	0.71	0.76	0.80	
Revenue from capacity charg	€m	-	2.43	2.55	2.57	2.54	
Revenue from commodity cha	€m	-	0.24	0.30	0.29	0.29	
Total Revenue (*)	€m		2.67	2.85	2.86	2.83	
DEMAND							
Demand peak days	GWh/day		69	71	70	68	
Demand commodity	GWh		10243	12846	12149	11933	

(*) 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. Revenue Summary

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	86.66	96.86	111.09	116.53
Interconnectors/Moffat Entry	48.45	55.69	68.12	57.14
Inch Entry	2.67	2.85	2.86	2.83
Total	*137.8*	*155.4*	*182.1*	*176.5*